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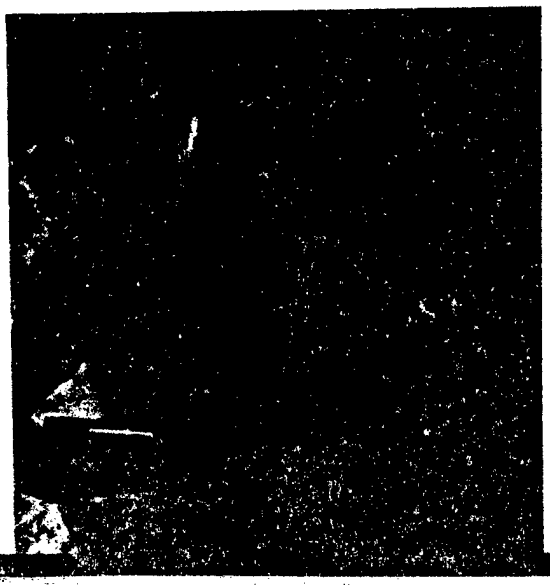
Management by Objective Review of Army Accident Experience CY 83



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Management by Objective Review of Army Accident Experience CY 83

Prepared by

U.S. ARMY SAFETY CENTER

TABLE OF CONTENTS

PREFACE

It should be noted that numbers of accidents, injuries and illnesses, as opposed to rates, is dominant in the statistical charts. Number of occurrences and frequency of occurrences coupled with costs, serve as the primary basis for problem identification, selection of trends and development of counter-measures. Rates are superimposed on the charts to place these problems in perspective and compare the increase or decrease in trends

SAFETY

PROGRAM OBJECTIVES AND GOALS FOR CY 83

MACOMs and installations will assure that occupational safety and health hazards abatement funds are expended on a worst first basis in the correction of all RAC 1 and 2 hazards by the end of FY 84. HQDA to initiate necessary policy and guidance to assure that RAC 1 and 2 hazards are promptly abated.

This objective was achieved. Policy and guidance was issued thru the Army Program Budget Guidance and DAPE-HRS letter dated 20 April 1983. MACOMs have acknowledged procedures established in their abatement plans to monitor the correction of OSH deficiencies. These procedures are being examined during MACOM program evaluations. Evaluations conducted to date (FORSCOM, USAREUR and DARCOM) have not indicated any major deficiencies.

Each MACOM and installation identify the predominant systemic causal factors associated with the frequency and severity of their vehicular (administrative, tactical and combat) accident experience and institute solutions to control these factors and the resultant accident experience.

This objective was achieved in the mid-year report. All MACOMs reported that predominant systemic causal factors associated with their vehicular accidents and had been identified and corrective/control actions initiated. Successful achievement of this objective is reflected in the lower Army wide statistical experience in AMV and combat vehicle categories.

PROGRAM OBJECTIVES AND GOALS FOR CY 83

Institute more effective controls for munition, ammunition and explosives storage sites to include but not limited to local licensings and rigid adherence to the Defense Explosive Safety Board site plan and safety submission requirements. MACOMs to initiate planning, programming and budgeting to abate existing explosive safety waivers and deviations.

This objective was not achieved. Army Program Budget Guidance required MACOMs to initiate actions to abate explosive deficiencies, however, the PDIP developed to support these actions was reduced in funding levels and moved to the out years. Safety Program control procedures for explosive storage operations and construction plan submissions were initiated in CY 83 but are still in the development stage.

HQDA, MACOMs and installations institute measures to ensure equivalent reporting of compensible disabilities under the Safety, Continuation of Pay and Federal Employees Compensation Programs.

This objective was not achieved. In accordance with HQDA letter dated 20 April 1983 and AR 690-800, MACOMs have established more stringent requirements for installation safety office liaison with civilian personnel offices. Because of significant differences in the guiding criteria for the two systems, equivalent reporting can only be accomplished by requiring a one for one submittal. Actions initiated in CY 83 are underway to reconcile the differences of the two systems by requiring this one for one submittal for statistical reporting purposes. The DA Form 285 will still be used for analytical evaluation.

PROGRAM OBJECTIVES AND GOALS FOR CY 83

HQDA mandated in CY 1983 a prescribed comprehensive program to significantly reduce the loss of military personnel in privately-owned vehicle accidents inclusive of but not limited to Presidential seat belt and drunk driving program initiatives.

This objective was achieved. A commander's POV accident prevention kit was assembled by the USASC and distributed to supplement the Presidential seat belt and drunk driving initiatives. Successful achievement of this objective is evidenced by the reduction of POV accidents, fatalities and non-fatal injuries.

HQDA to continue efforts to control aircraft losses including assessment as to whether there is any relationship in the use of simulators to pilot error aviation mishaps.

This objective was partially achieved. Destroyed aircraft remained the same, aviation fatalities were reduced but numbers of Class A, B and C accidents increased. Assessment of relationship in the use of simulators to pilot error accidents was initiated but not accomplished due to lack of priority.

PROGRAM OBJECTIVES AND GOALS FOR CY 83

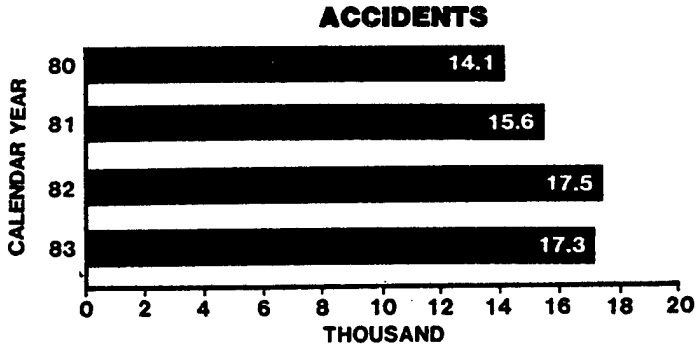
Reduce the number of fatal and disabling military and civilian injuries by 5% in CY 1983 compared to the CY 1980 thru 1982 three year average, and property damage by 10% in CY 1983 compared to the same three year average.

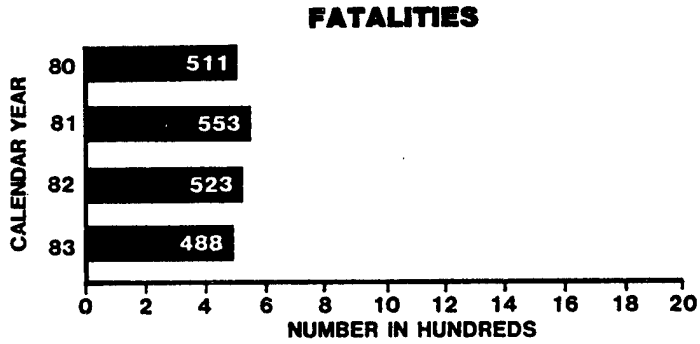
This objective was not achieved. Fatalities decreased by 8%, disabling injuries increased by 4% and property damage increased by 18%.

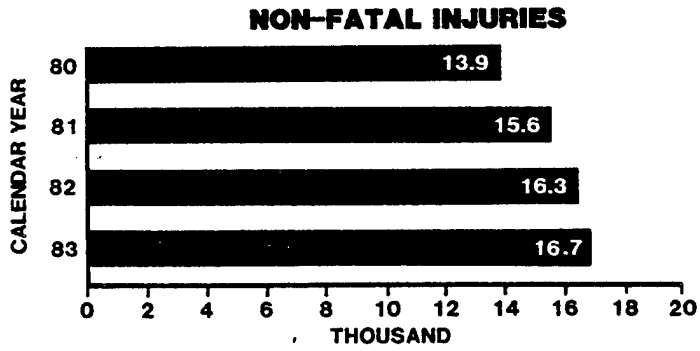
REORGANIZATION OF THE OFFICE OF THE ARMY SAFETY PROGRAM

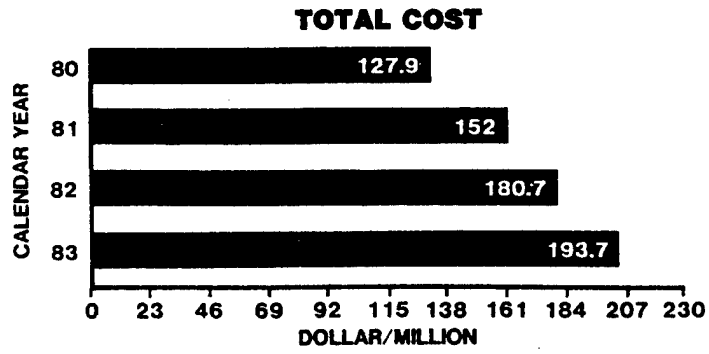
A reorganization of the safety management within ODCSPER and at the US Army Safety Center (USASC) took place on 1 October 1983. The reorganization, directed by the DCSPER on 6 April 1983, was the culmination of an ODCSPER study conducted during January and February 1983. Effective 1 October 1983, Major General John H. Mitchell, Director of Human Resources Development, ODCSPER, assumed the title and responsibilities of Director of Army Safety and the Office of the Army Safety Program was abolished. The Safety Technical Advisory Office was established within the Human Resources Development Directorate, ODCSPER, to provide safety technical advice to the Director of Army Safety and respond to the Army Staff, the Army Secretariat and the Department of Defense as required. At the same time the Commander, USASC, was appointed as the Deputy Director of Army Safety and reports directly to MG Mitchell on all matters of safety policy, planning and programming. The reorganization clarifies and streamlines the management of the Army Safety Program at the Department of Army level, consolidates program functional elements at the USASC and maintains a rapid response, liaison and technical advisory capability on the Army Staff.

TOTAL U.S. ARMY ACCIDENT EXPERIENCE
(Includes Civilian & On/Off-Duty Military)









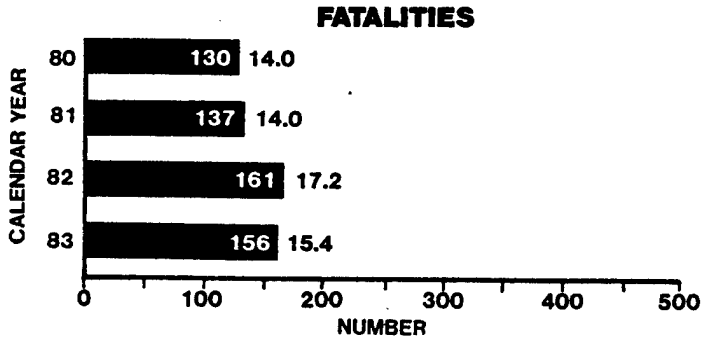
The rising upward trend in numbers of accidents was reversed with a 2.1% decrease (200 accidents) in CY 83 from CY 82. Decreases were experienced in all type accidents except chemical, aviation and personnel injury - other accidents.

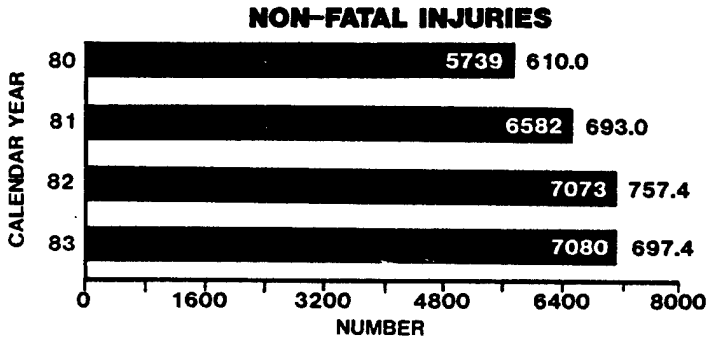
The downward trend in fatalities experienced over the previous two years continued in CY 83 with a 7% reduction (35 fatalities). This decrease is attributed to a decrease in POV accident fatalities.

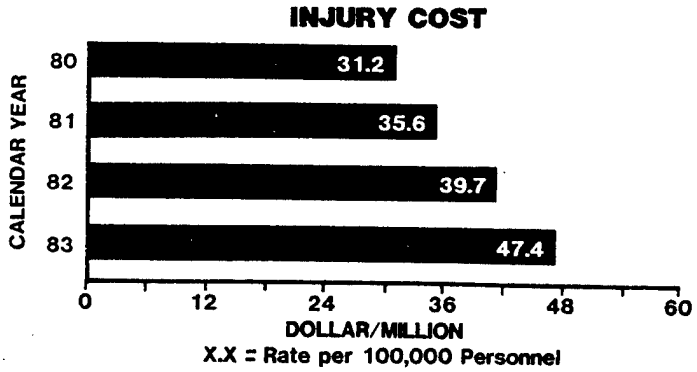
The upward trend in non-fatal injuries continued with a 2% increase (400 non-fatal injuries) in CY 83 from CY 82. Decreases occurred in AMV and POV accidents but were offset by an increase in personnel injuries - other accidents.

Total costs continued the upward trend experienced over the previous three years with a 7% increase ($13 million) in CY 83 over CY 82. This increase occurred in AMV, property damage - other, personnel injuries - other and aviation accidents.

U.S. ARMY MILITARY INJURIES
On Duty







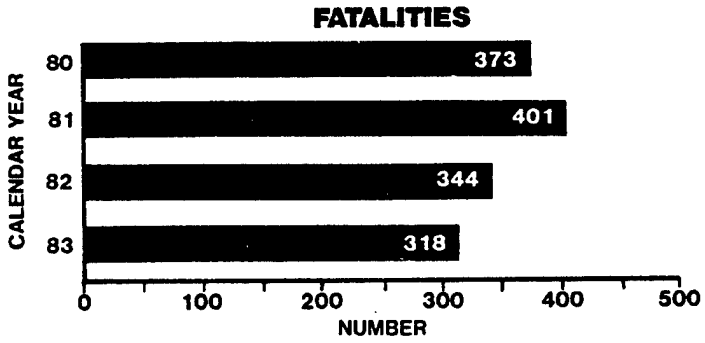
X.X = Rate per 100,000 Personnel

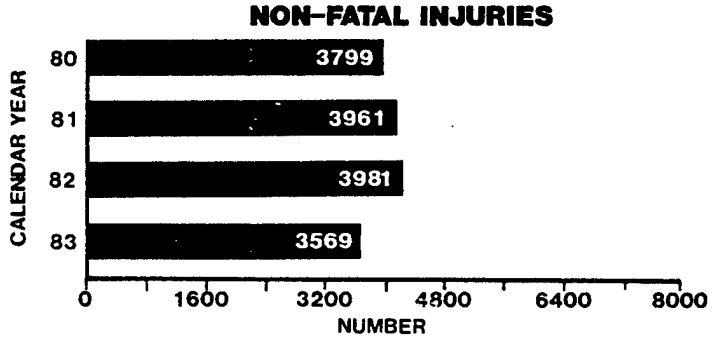
The sharp upward trend in on-duty military fatalities was reversed with a 3% decrease (5 fatalities) in CY 83 from CY 82. Decreases occurred in AMV, aviation and personnel injuries - other accidents.

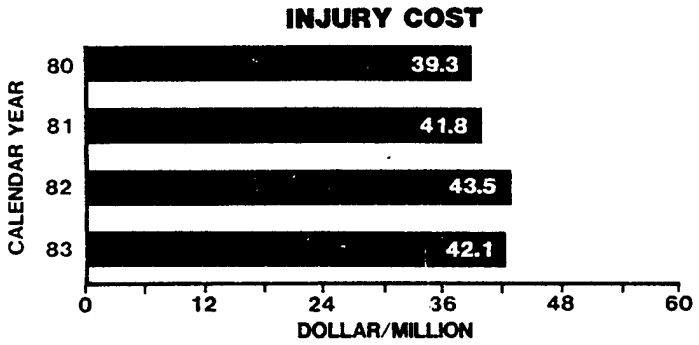
The rising upward trend in on-duty non-fatal military injuries continued with an increase of 7 injuries in CY 83 over CY 82. This increase is attributed to a 4% increase in personnel injuries - other accidents.

On-duty military injury costs continued the upward trend with a 19% increase ($7.7 million) in CY 83 over CY 82. This increase occurred primarily in on-duty permanent total and permanent partial disabling injuries. The requirement for reporting cost of hospitalization initiated in August 1982 also contributed significantly to this increase.

U.S. ARMY MILITARY INJURIES
Off Duty







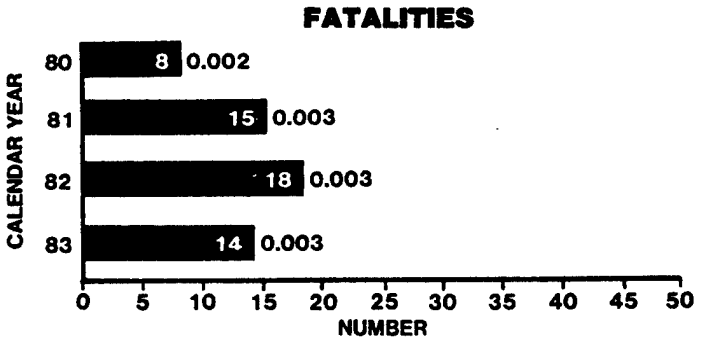
X.X = Rate per 100,000 Personnel

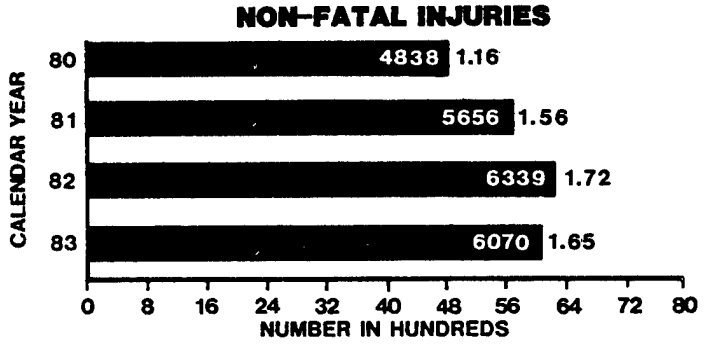
The downward trend in off-duty military fatalities continued in CY 83 with a 7% decrease (26 fatalities) from CY 82. This was a result of decreases in POV accidents.

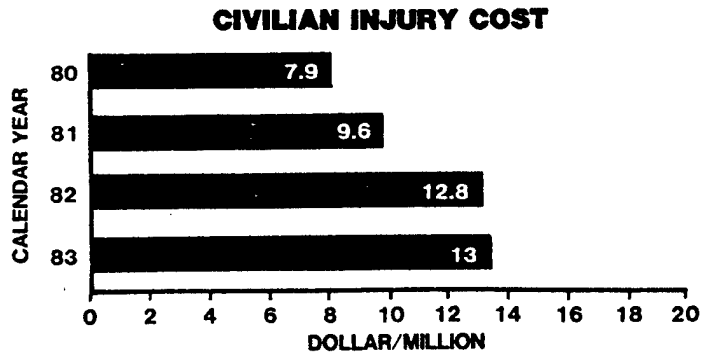
The rising trend in non-fatal military injuries was reversed in CY 83 with a 10% decrease (412 injuries) from CY 82. This decrease occurred primarily in personnel injuries - other and POV accidents.

The rising trend in injury costs was reversed with a 3% decrease ($1.4 million) in CY 83 over CY 82. This was a result of the decreases experienced in off-duty military fatalities and non-fatal injuries. The requirement initiated in August 1982 for reporting cost hospitalization offset most of the decrease resulting in the extremely small percent of decrease.

U.S. ARMY ON-DUTY CIVILIAN INJURIES







X.X = Rate per 200,000 Man-Hours

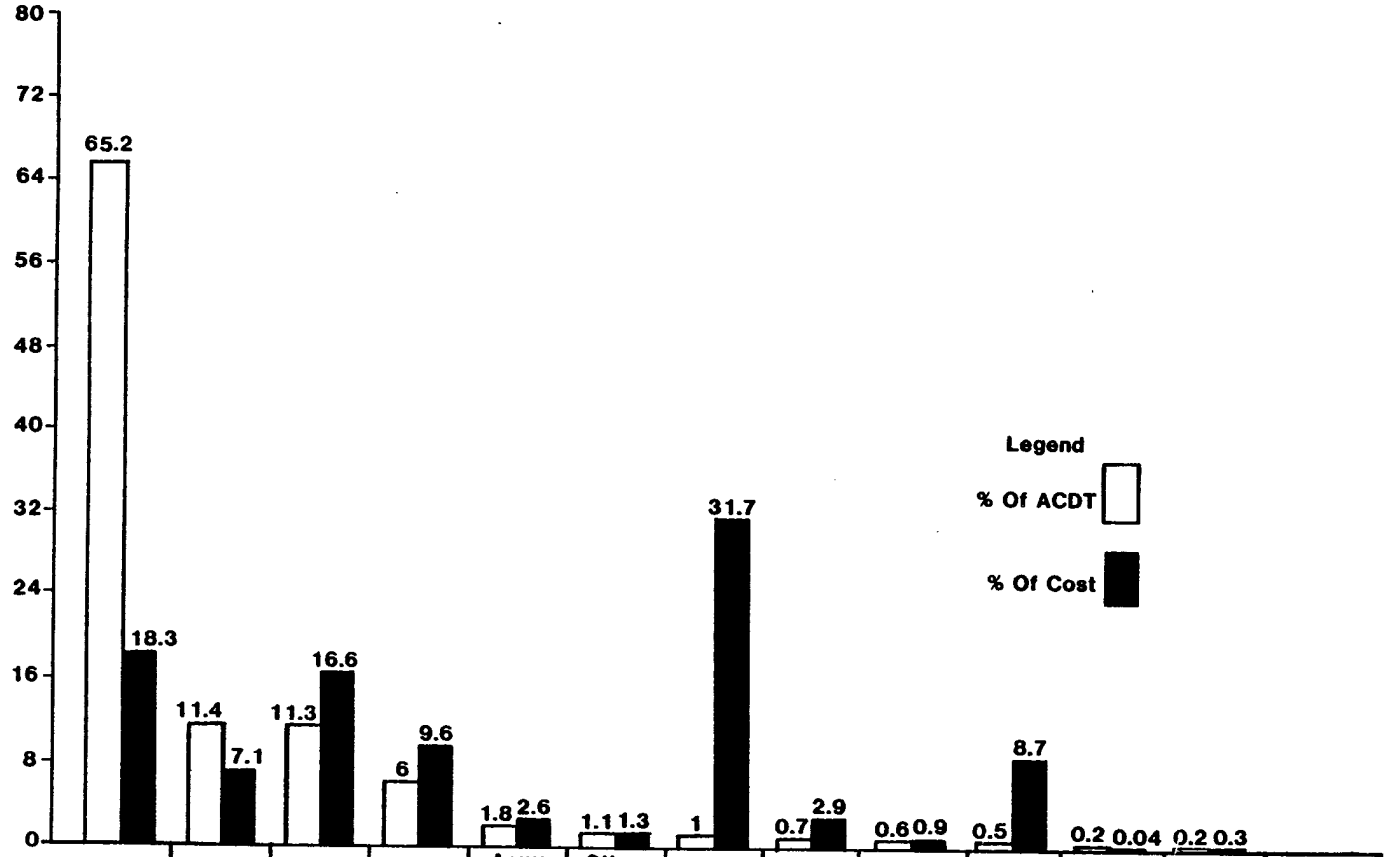
The sharply rising trend in civilian on-duty fatalities was reversed in CY 83 with a 22% decrease (4 fatalities) over CY 82.

The rising trend in civilian non-fatal injuries was reversed in CY 83 with a 4% decrease (269 non-fatal injuries) over CY 82. This was a result of decreases in injuries sustained in personnel injuries - other accidents.

The rising trend in civilian injury costs continued in CY 83 with a $.2 million increase over CY 82. This increase was a result of the increase in non-fatal injuries.

FREQUENCY, PERCENT AND COST OF ACCIDENTS

Calendar Year 1983

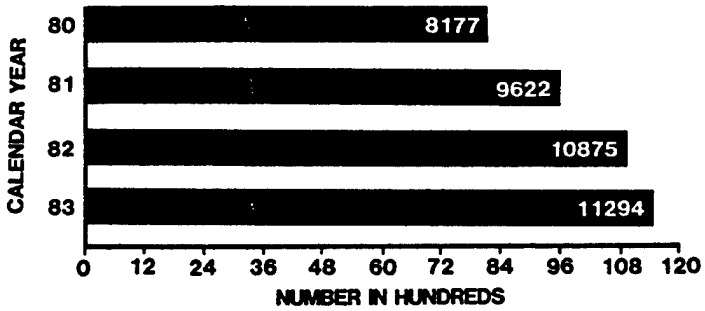


Type Accident	Per Inj On Duty	Per Inj Off Duty	POV	AMV	Army Combat Vehicle	Other Army Vehicle	Aviation	Fire	Explosive	Other Prop Damage	Radiation and Chemical	Marine	Totals
Accident Number	11294	1969	1954	1044	316	186	180	122	94	79	36	35	17311
Accident Cost (Thousand)	35502	13698	32143	18555	4979	2559	61476	5647	1709	16786	71	584	193709

On-duty personnel injuries - other, off-duty personnel injuries - other, POV, AMV, combat vehicle and aviation accidents account for 97% of all accidents and 86% of the total cost for CY 83.

PERSONNEL INJURY-OTHER ACCIDENTS
On Duty

ACCIDENTS



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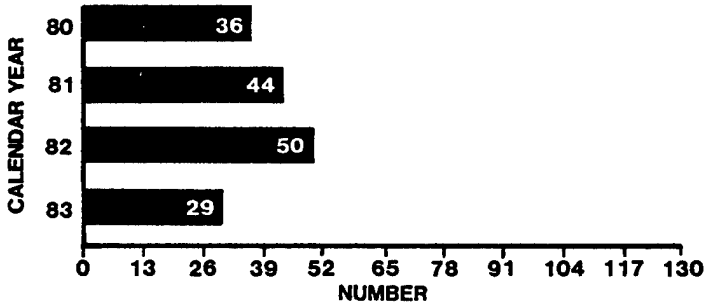
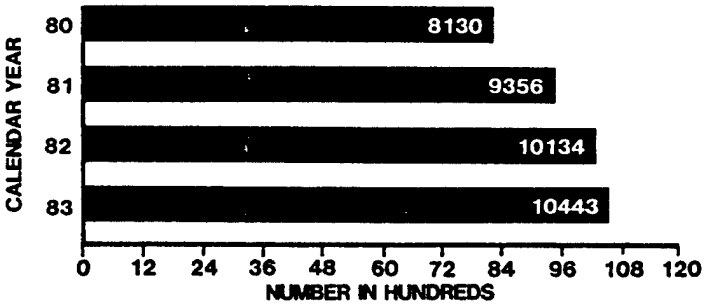
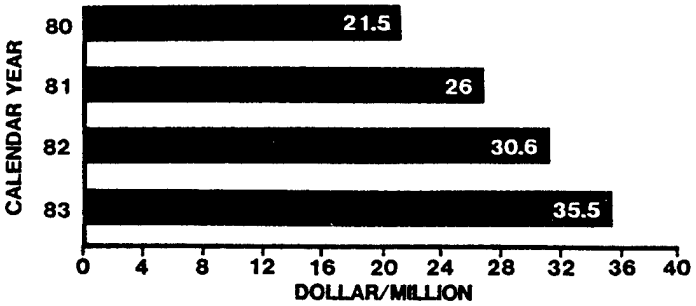


NON-FATAL INJURIES



TOTAL COST



The rising trend in on-duty personnel injury - other accidents continued in CY 83 with a 4% increase (419 accidents) over CY 82.

The rising trend in on-duty personnel injury - other fatalities was reversed with a 42% decrease (21 fatalities) in CY 83 over CY 82. This decrease occurred primarily in military fatalities during combat soldiering activities, and civilian fatalities in maintenance, repair and servicing activities.

The rising trend in on-duty personnel injury - other non-fatal injuries continued in CY 83 with a 3% increase (309 injuries) over CY 82. This increase occurred in military injuries during physical training and materiel handling activities and civilian injuries during materiel handling, office activities and activities involving human locomotion.

The rising trend in personnel injury - other costs continued in CY 83 with a 16% increase ($4.9 million) over CY 82. This was a result of the increase in the number of non-fatal injuries and the added requirement for costing of days hospitalized.

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PERSONNEL INJURY - OTHER ACCIDENTS ON-DUTY CY 83

Activity	Military	Civilian
Maintenance/repair/servicing	651	1,586
Handling materiel/passengers	625	1,334
Combat soldiering	1,283	---
Human locomotion	508	761
Physical training	629	6
Being a passenger	261	156
Sports	373	14
Food/drink preparations	107	215
Janitorial/housekeeping/grounds	52	240
Handling vehicle/vessel/animal	144	76
Miscellaneous	835	587
TOTAL	5,468	4,975

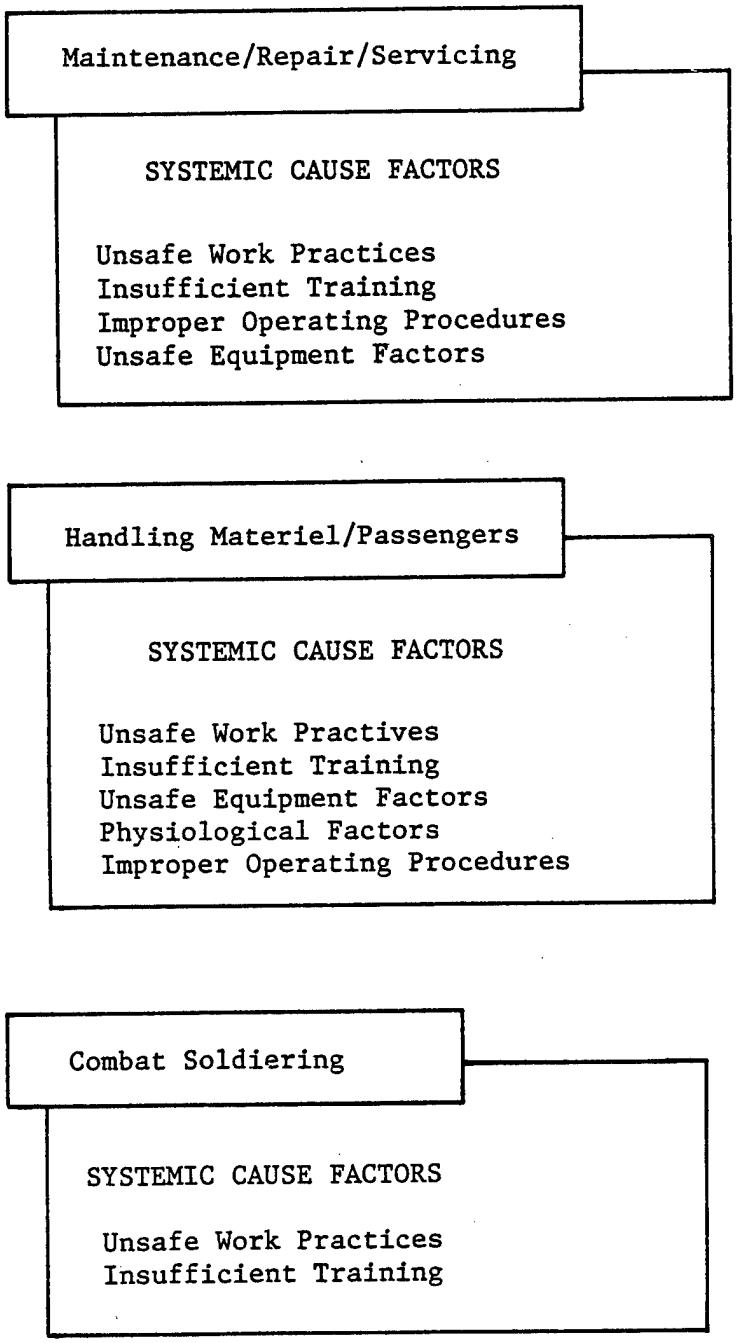
PROBLEM AREAS

Maintenance/Repair/Servicing was the number two activity for military and number one for civilians. Most of these injuries occurred in maintenance facilities, with vehicle facilities being the most prevalent. The most frequent task involved was installing/removing/modifying equipment.

Handling materiel/passengers was the number four activity for military and number two for civilians. Most of the military injuries occurred in training areas, operational facilities, and maintenance facilities. Most of the civilian injuries occurred in storage facilities, operational facilities, and maintenance facilities. The most frequent tasks involved for both military and civilian were loading/unloading and transporting/moving.

Combat soldiering was the number one activity for military personnel. Most of these injuries occurred in designated training areas. The most frequent task involved was tactical parachuting.

PERSONNEL INJURY - OTHER



PERSONNEL INJURY - OTHER ON-DUTY

MAINTENANCE/REPAIR/SERVICING COUNTERMEASURES
HANDLING MATERIEL/PASSENGERS COUNTERMEASURES

Request to TACOM to field protective guard around elevation servo valve to M60A1 tank (Feb 83). TACOM fielded FY 84.

Published proper procedures on slave starting in COUNTERMEASURE (Nov 83).

Request to DARCOM to establish accountability on MWO compliance (Feb 84).

COUNTERMEASURE article on maintenance injuries and recommended countermeasures (Nov 83).

Operation Alert in COUNTERMEASURE on clevis assembly on M88A1 (Aug 83).

COUNTERMEASURE article on eye safety followed by another COUNTERMEASURE issue with pain facts column devoted to eye injuries (Apr 83).

TB covering safety aspects of lifting and basic back injury avoidance has been written. Estimated fielding in May 1984.

COUNTERMEASURE article published on proper tire inflation procedures (Nov 83 and Feb 84).

Distributed Army-wide an Alcohol and Accidents Guide detailing alcohol as a causal factor of accidents.

Identified MWO deficiency on 25-ton snatch block on M88A1 in COUNTERMEASURE (Nov 82 and Jan 83).

COMBAT SOLDIERING COUNTERMEASURES

COUNTERMEASURE article on special investigation of parachute (Sep 83).

Request to DCSOPS to recommend restrictive use of MC1-1B parachutes and establishment of a central agency to be responsible for airborne doctrine including safety (Mar 83).

COUNTERMEASURE article on the proper use of ground guides (Feb 83 and Apr 84).

Hazard Alert on possible design error on parachute reserve container issued as a result of a CAIG finding (Feb 84).

COUNTERMEASURE article on heat injuries (Apr 83) and later published information on hot weather film which was combat soldiering oriented (Jun 83).

The USASC is developing unit specific support packages that address those hazards unique to each organizational type. Armor packet is in final stages of development. Estimate fielding in 4th Qtr FY 84.

Prepared a "model" soldier's manual that embodies safety contents in a comprehensive manner. Sent to TRADOC for staffing in Nov 83.

COUNTERMEASURE article on FTX safety (Feb 83) emphasizing proper planning and training.

COUNTERMEASURE article highlighting proper procedures in handling ordnance (Jan 84).

COUNTERMEASURE articles reviewing major range and explosive accidents (Jan 84).

Ongoing range safety training courses conducted by USASC.

Development of explosive safety course for operational personnel by USASC. First course to be taught in 3rd Qtr FY 84.

PERSONNEL INJURY - OTHER ON-DUTY

COMBAT SOLDIERING COUNTERMEASURES (Continued)

COUNTERMEASURE article highlighting proper procedures in handling ordnance.

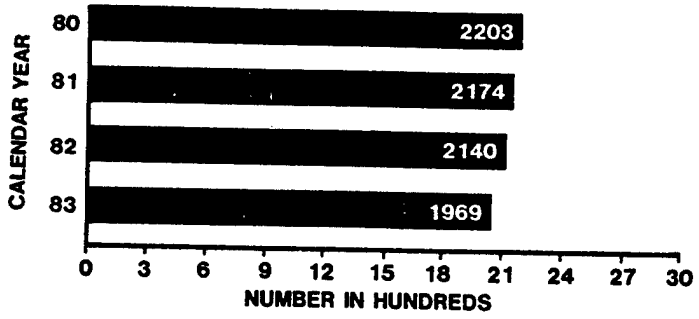
COUNTERMEASURE articles reviewing major range and explosive accidents.

Ongoing range safety training courses conducted by USASC.

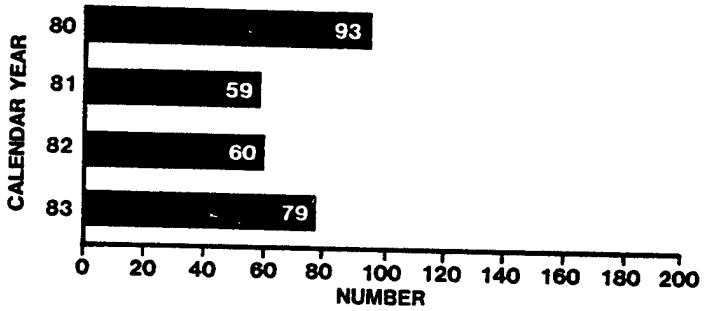
Development of explosive safety course for operational personnel by USASC. First course to be taught in 3rd Qtr FY 84.

PERSONNEL INJURY-OTHER ACCIDENTS
Off Duty

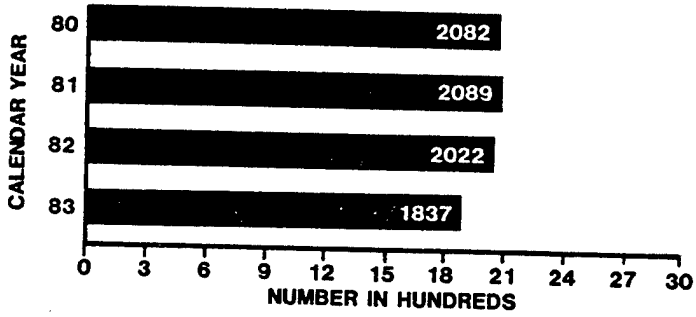
ACCIDENTS



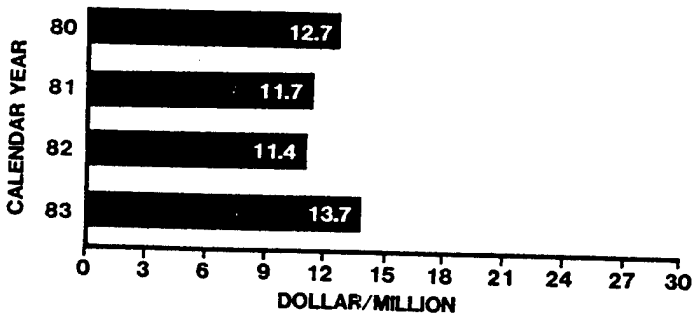
FATALITIES



NON-FATAL INJURIES



TOTAL COST



The declining trend in the number of off-duty personnel injury - other accidents continued in CY 83 with an 8% decrease (171 accidents) from CY 82.

The rising trend in off-duty personnel injury - other fatalities continued with a sharp rise of 32% (19 fatalities) in CY 83 over CY 82. This was result of increases in fatalities involving sports and human locomotion.

The declining trend in off-duty personnel injury - other non-fatal injuries continued in CY 83 with a 9% decrease (185 injuries) from CY 82. This was a result of a decrease in injuries resulting from sports and human locomotion (running/walking).

The declining trend in off-duty personnel injury - other costs was reversed in CY 83 with a 20% increase ($2.3 million) over CY 82. The increased cost is primarily due to the increase in fatalities plus the added cost of hospitalization.

PERSONNEL INJURY - OTHER OFF-DUTY CY 83

Activity	Number of Injuries
Sports	827
Human Locomotion	442
Personal hygiene/sleeping	183
Maintenance/repair/servicing	122
Horseplay	62
Janitorial/housekeeping/grounds keeping	52
Handling materiel/passengers	43
Being a passenger	36
Weapons handling/operation	34
Food/drink preparation	34
Miscellaneous	81
TOTAL	1,916

PROBLEM AREAS

Sports and human locomotion accounted for 66% of the off-duty personnel injury - other injuries. As expected, most of the sports injuries occurred in recreation/entertainment facilities. The sports primarily involved were basketball, softball, tackle football and touch football. The human locomotion injuries involved activities such as walking, running and climbing. Most of these injuries occurred in housing facilities (individual and family) and on travel ways (pedestrian way and roadway).

PERSONNEL INJURY - OTHER OFF-DUTY

Sports

- Basketball
- Softball
- Tackle Football
- Touch Football
- Swimming

SYSTEMIC CAUSE FACTORS

The principal cause factors identified in DOD 6055.7 are not reported for off-duty accidents. Therefore, corrective actions are keyed to the activity in general.

Human Locomotion

- Walking
- Running
- Climbing

SYSTEMIC CAUSE FACTORS

The principal cause factors identified in DOD 6055.7 are not reported for off-duty accidents. Therefore, corrective actions are keyed to the activity in general.

PERSONNEL INJURY - OTHER OFF-DUTY

SPORTS/HUMAN LOCOMOTION COUNTERMEASURES

Developed sports safety program element guide. Guide was tested at Ft Stewart with favorable evaluation. Now ready for Army-wide distribution.

Distributed Alcohol and Accidents Guide which covered implications of alcohol use as a key factor in off-duty accidents.

A water safety kit was developed to highlight water safety procedures especially in off-duty recreational swimming. Currently in use (Mar 83).

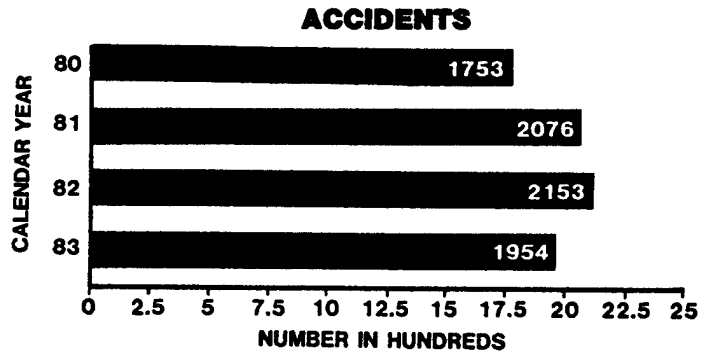
Article on hypothermia outlining precautions against swimming in cold water published in COUNTERMEASURE (Mar 83).

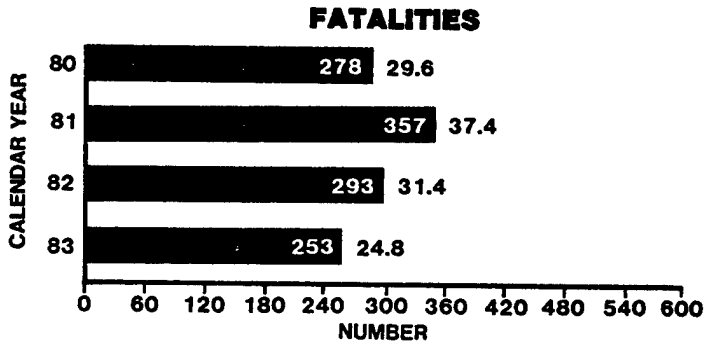
Water safety information posters were produced and currently in use (Mar 83).

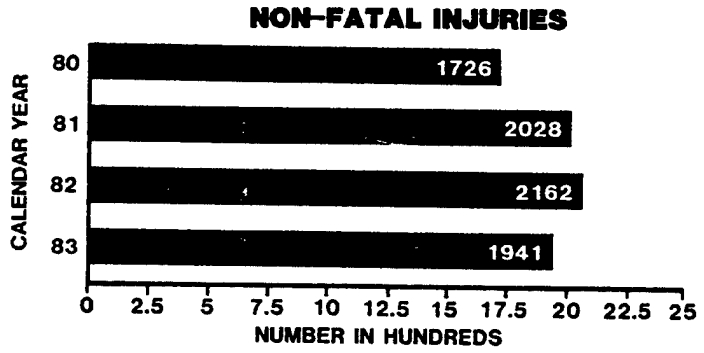
Safety article on proper boating and canoeing procedures published in COUNTERMEASURE (Mar 83).

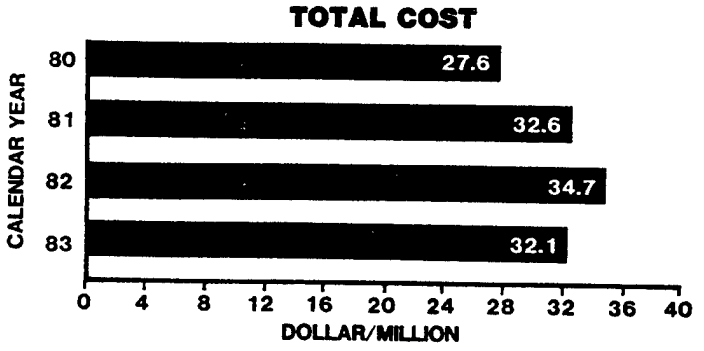
An analysis of sports activities in which Army personnel were injured was distributed Army-wide in January 1983.

PRIVATELY OWNED VEHICLE ACCIDENTS









Military Fatality Rate Per Hundred Thousand Military Population

The upward trend of POV accidents was reversed in CY 83 with a 9% decrease (199 accidents) from CY 82.

The declining trend in POV fatalities continued in CY 83 with a 14% decrease (40 fatalities) from CY 82. During CY 83,POV accidents resulting in 53% of the overall number of military fatalities, but represented only 11.3% of the total number of Army accidents.

The upward trend in POV non-fatal injuries was reversed in CY 83 with a 10% decrease (221 injuries) from CY 82.

The rising trend in POV costs was reversed in CY 83 with a 7% decrease ($2.6 million) over CY 82. This was a result in the decrease in fatalities and injuries.

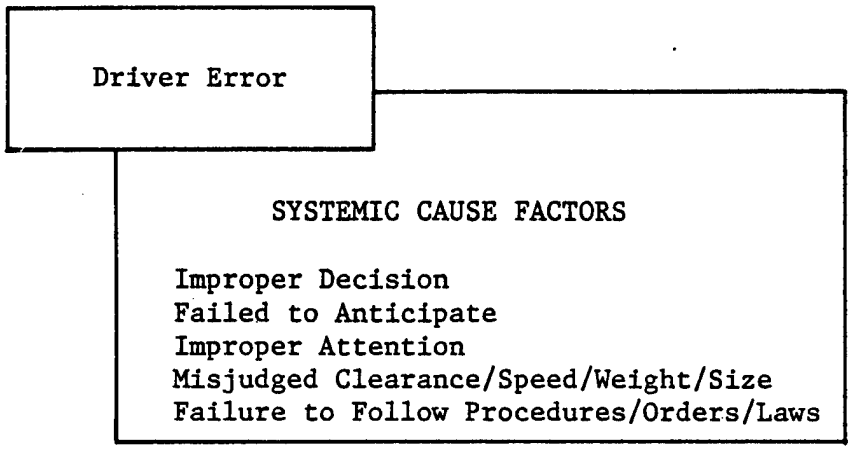
POV ACCIDENTS CY 83

Vehicle	Accidents Number	%	Cost	Injuries Fatal	Non-Fatal
Auto/sedan	280	58	10,969,179	157	198
Motorcycle/moped	113	23	3,069,360	43	77
Truck	45	9	1,627,870	28	32
Bicycle	14	3	32,767	0	14
Other POV	8	2	246,130	4	6
Train	6	1	1,617,500	5	0
Aircraft	5	1	235,000	5	0
Truck tractor	4	1	233,000	4	0
Van	4	1	48,545	1	3
Bus	2	1	47,680	1	1
Trailer	1	1	47,000	1	0
Unreported	4	1	14,960	0	3
Total for on-duty or off-duty fatal accidents	486	100	18,188,991	249	334

PROBLEM AREAS

Two types of vehicles accounted for 81% of the POV accidents and 77% of the cost. These two types were autos/sedans and motorcycles/mopeds. Most (58%) of these POV accidents (autos/sedans and motorcycles/mopeds) involved driver error.

POV


Driver Error
SYSTEMIC CAUSE FACTORS
Improper Decision
Failed to Anticipate
Improper Attention
Misjudged Clearance/Speed/Weight/Size
Failure to Follow Procedures/Orders/Laws

DRIVER ERROR COUNTERMEASURES

A commander's accident prevention POV kit has been provided to all field elements. This has reduced POV fatalities by over 50 percent at all installations where the kit has been applied (i.e., Fort Hood, Fort Knox, Fort Campbell, Fort Stewart). An overall 22 percent reduction in Army POV accidents has resulted.

COUNTERMEASURE article, October 1983, emphasizing the new tougher laws enacted by the Army against drunk driving offenders.

Three films produced by USASC to support commander's POV accident prevention kit stressing drinking and driving, seat belts and falling asleep at the wheel.

USASC distributed literature to assist installation in implementation of DOD Directive 5524.4, Wearing of Restraint Systems by All Army Personnel Driving or Riding in a POV on Army Installations, October 1983. Literature consisted of abstract of a successful installation seat belt use program and DOT, NHTSA safety belt use programs.

USASC conducted 14 instructor training classes worldwide.

Initiated and set up motorcycle training programs throughout MACOMs.

Initiated test licensing program utilizing the motorcycle operator's training course (MOST) at selected Army installations.

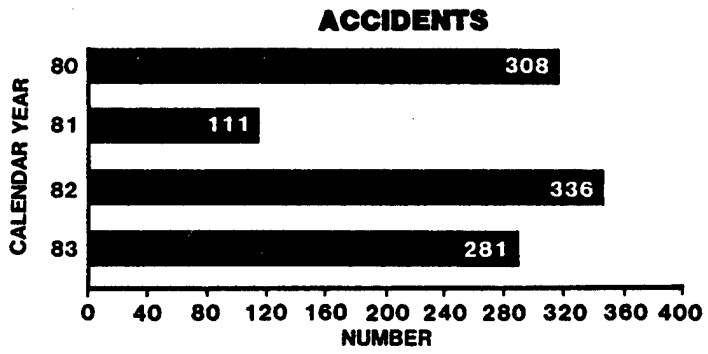
Motorcycle article, "Better Biking Saves Lives", featured in SOLDIER SCENE for distribution to field (Jan 84).

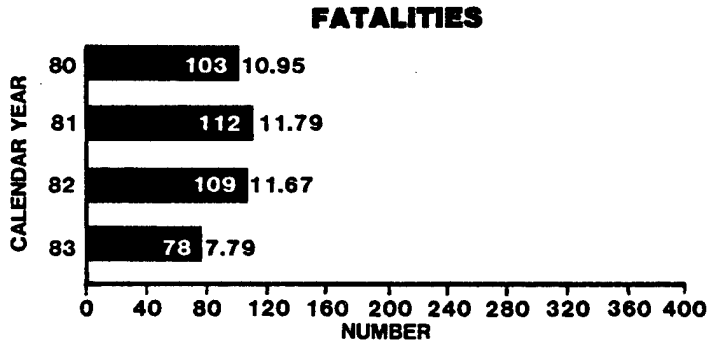
Briefed motorcycle safety program to MACOM directors during National Safety Council Meeting (Sep 83).

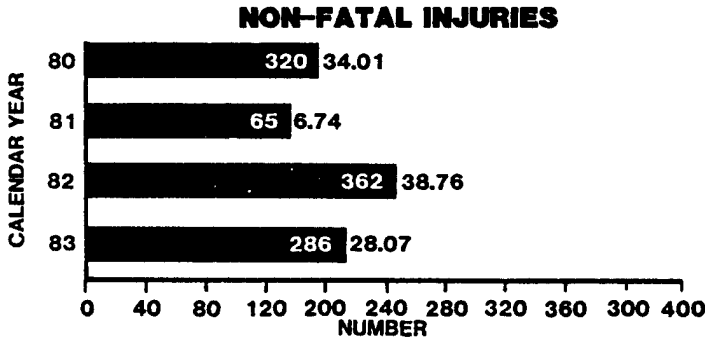
Programmed evaluations scheduled for Fort Bliss to evaluate training program.

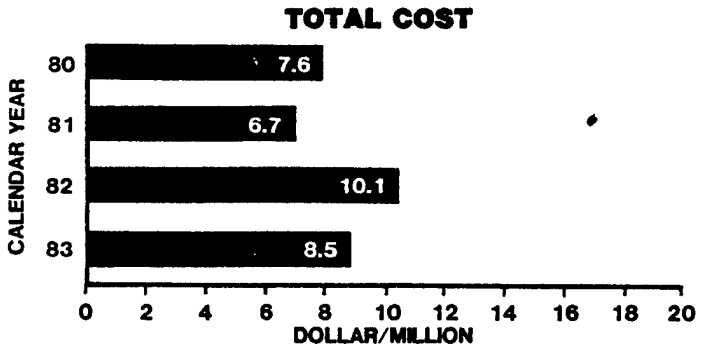
Motorcycle safety articles emphasizing proper clothing and driving techniques in COUNTERMEASURE (May 83).

PRIVATELY OWNED VEHICLE ACCIDENTS
(With Alcohol Involvement On Part Of Army Operator)



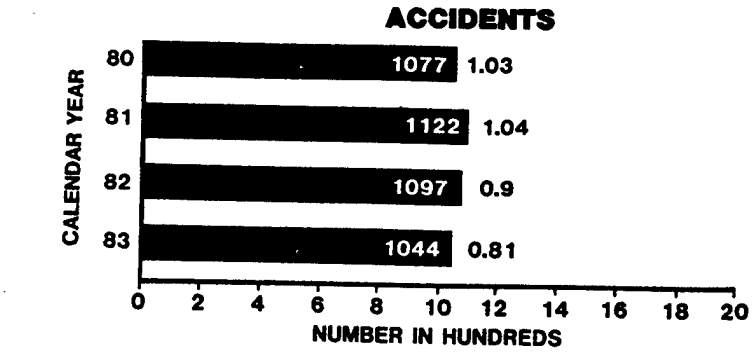


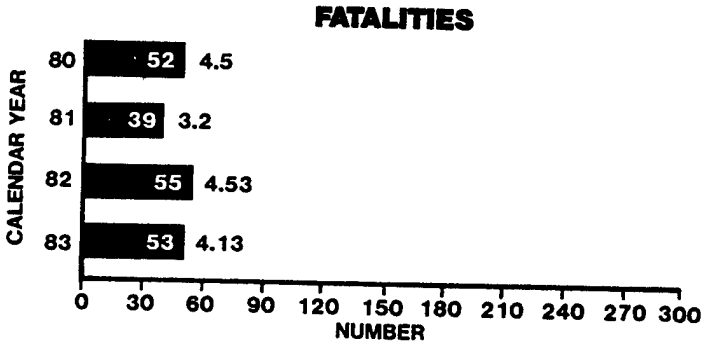


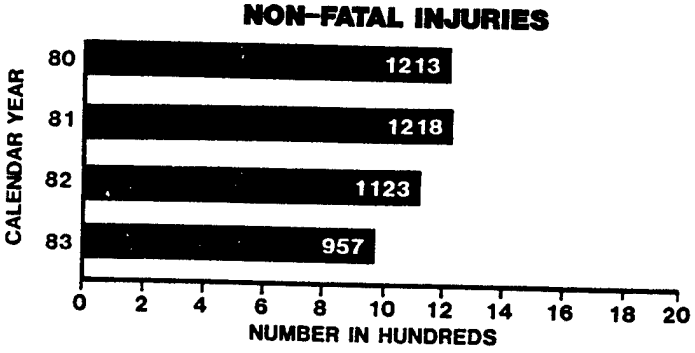


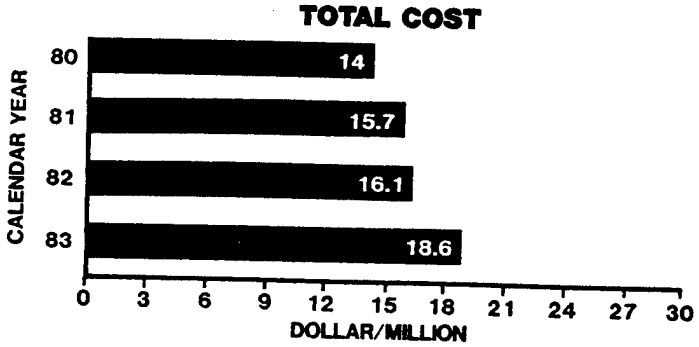
During CY 83, the number of POV accidents in which the Army operator was evidenced as having consumed alcohol was 15% less (55 accidents) than the number reported for CY 82. Similar decreases were reflected in the resulting injuries and costs. The low number of accidents, non-fatal injuries and total cost during CY 81 is a result of a change in reporting requirements during this period which did not require off-duty non-fatal accidents to be reported in sufficient detail to determine whether alcohol was involved.

U.S. ARMY MOTOR VEHICLE ACCIDENTS









Accident Rate Per Million Miles, Fatality Rate Per Hundred Million Miles

The downward trend in AMV accidents continued in CY 83 with a 5% decrease (43 accidents) over CY 82.

The upward trend in AMV fatalities was reversed in CY 83 with a 4% decrease (2 fatalities) from CY 82.

The downward trend in AMV non-fatal injuries continued in CY 83 with a 15% decrease (166 inuuries) from CY 82.

The upward trend in AMV costs continued in CY 83 with a 16% increase ($2.5 million) over CY 82. This increase was a result of a $1.1 million increase in AMV injury costs attributed to the added requirement for costing of days hospitalized and a $1.4 million increase in property damage.

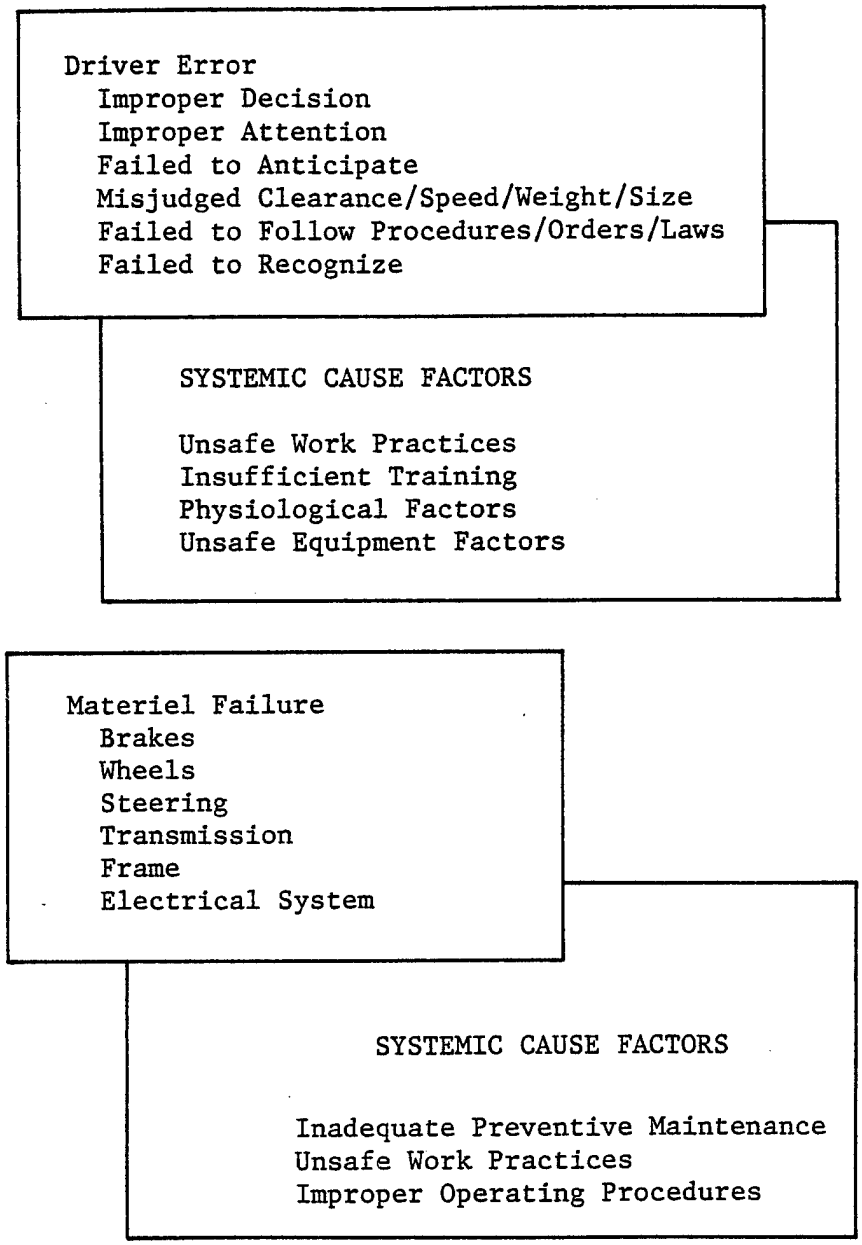
AMV ACCIDENTS CY 83

Vehicle	Accidents			Injuries	
	Number	%	Cost	Fatal	Non-Fatal
Tactical					
½-ton truck	245	23	4,096,455	17	301
2½-ton truck	124	12	4,657,932	2	95
5-ton truck	81	8	1,775,906	3	57
M880/890 truck	68	7	662,512	2	65
Over 10-ton truck	43	4	1,131,824	2	22
Gamma goat	35	3	654,715	3	33
8- & 10-ton truck	19	2	542,650	4	11
Tactical trailer	12	1	248,162	2	8
½-1½-ton truck	5	1	43,156	-	4
HET	4	1	217,715	-	2
Other tactical veh.	103	10	1,868,585	8	88
Commercial					
Sedan/station wagon	65	6	539,205	2	56
Over 2-ton truck	49	5	262,546	1	48
Van	43	4	387,166	2	39
¼ - 3/4-ton truck	41	4	429,316	3	39
Contractor vehicle	19	2	96,489	-	3
Motorcycle/moped	14	1	65,664	-	14
Bus	10	1	113,104	-	6
1 - 2-ton truck	7	1	15,477	-	9
Truck-tractor	6	1	44,185	-	6
Trailer	1	1	4,340	-	1
Other commercial veh.	50	5	697,433	2	50
TOTAL	1,044	100	18,554,537	53	957

PROBLEM AREAS

Five types of vehicles accounted for 56% of the AMV accidents and 63% of the cost. These five types were ¼-ton trucks, 2½-ton trucks, 5-ton trucks, M880-890 trucks, and sedans/station wagons. Eighty percent of these accidents occurred in unit proficiency training, with the remaining 20% spread across basic, advanced and unit on-the-job training. These vehicles are analyzed with respect to driver errors and materiel failures.

AMV


Driver Error
Improper Decision
Improper Attention
Failed to Anticipate
Misjudged Clearance/Speed/Weight/Size
Failed to Follow Procedures/Orders/Laws
Failed to Recognize
SYSTEMIC CAUSE FACTORS
Unsafe Work Practices
Insufficient Training
Physiological Factors
Unsafe Equipment Factors
Materiel Failure
Brakes
Wheels
Steering
Transmission
Frame
Electrical System
SYSTEMIC CAUSE FACTORS
Inadequate Preventive Maintenance
Unsafe Work Practices
Improper Operating Procedures

DRIVER ERROR COUNTERMEASURES

Articles published in COUNTERMEASURE emphasizing the need for trained drivers and procedures on how to implement (Jun 83).

Published the availability of the film, "Driving for the Army - A Job for Professionals," that will assist the unit driver's training program in COUNTERMEASURE (Jun 83).

Ground guiding procedure articles published in COUNTERMEASURE (Feb 83 and Apr 84).

TRADOC developing exportable driver's training packet by type vehicles for use by unit commanders. Action ongoing.

Revision of AR 600-55, "Motor Vehicle Driver Selection, Testing, and Licensing," is being rewritten to update the procedures and training requirements in order to provide a one-source document that the unit commander can utilize.

Recurring monthly accident briefs published in COUNTERMEASURE identifying typical accident cause factors in both AMV and ACV in an effort to increase the awareness of the soldier.

Recommendations submitted to TRADOC to review requirement for night vision training for ground troops (Feb 84) and training on night vision goggles (Oct 83). Action ongoing.

Recommendations made to TACOM to develop emergency procedures for type vehicles to be included in operator's manuals (Dec 83).

Published request to the field on their "field emergency procedures" for input in development of sound emergency procedures (Feb 84).

Memo (9 Jun 83), TRADOC assigned as proponent for driver training to develop an exportable driver training packet.

Random sample survey currently being conducted on DA Form 285-1 injury/accident special categories.

MATERIEL FAILURE COUNTERMEASURES

Letter to TACOM (14 Dec 82) to review/develop a user check on M151 steering stops. TACOM developed a quick check to be included in TM 9-2320-218-10.

Letter to TACOM (15 Jan 83) to develop method for easy identification of different wheel brake cylinders. TACOM developed an overstamped tag to be attached to wheel brake cylinders by the manufacturer (28 Mar 83).

TACOM issued a safety-of-use message clarifying procedures for loss of engine power due to clogged fuel filter which caused a GOER tanker to lose steering control when engine quit from fuel starvation.

Letter to TACOM (10 Jan 84) requesting design of fail-safe air valves and changes to the M817 operator's manual. Action under study.

Letter to TACOM (28 Sep 83) requested rollover protection and restraint systems be developed and produced. Letter from TACOM (25 Nov 83) states that based on a DA position in 1976, rollover protection for the M151 has been abandoned. No further action is planned by TACOM.

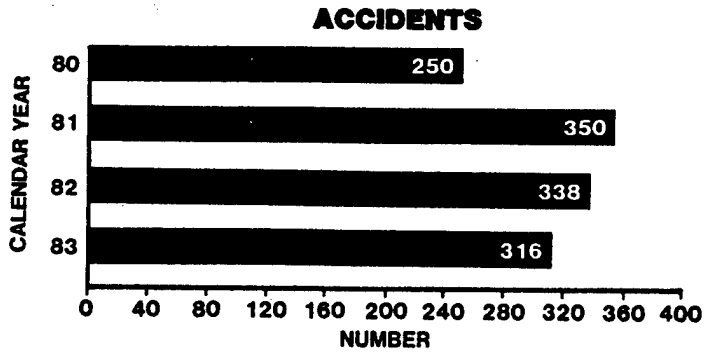
Hazard Alert issued Feb 84 on M220A1 TOW Jeep and hazards involved with current use in an overloaded condition resulting in inadequate steering response. Current safety-of-use message has restricted use of vehicle in this configuration. Solution pending resolution by DARCOM, TRADOC, and FORSCOM as to its operational requirement.

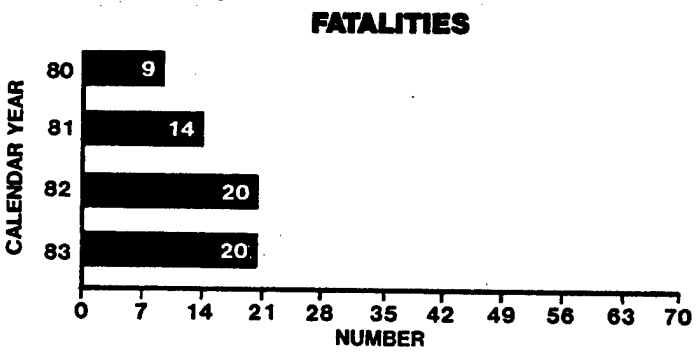
USASC submitted DA Form 2028 (18 Feb 83) to TACOM for TM 9-2320-218-20-1 on M151 Jeep wheel cylinder inspection.

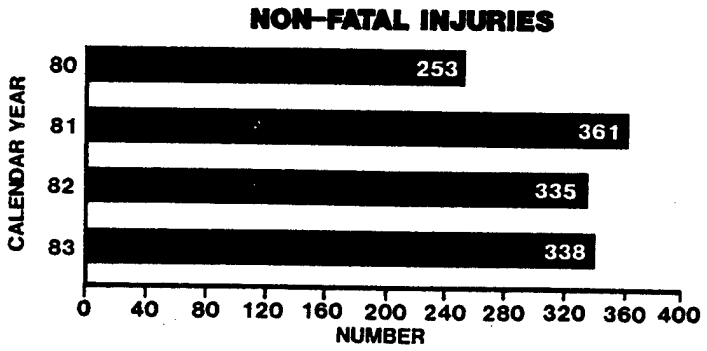
Published COUNTERMEASURE articles on M151 steering (Jan 83), M151 brakes (Jan 83), maintenance (Nov 83), and unit training for mechanics (Feb 83).

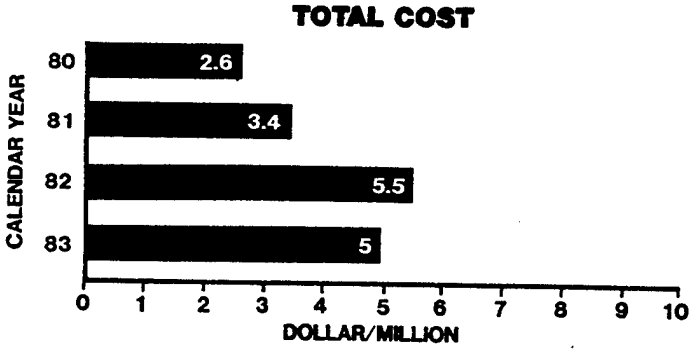
USASC submitted DA Form 2028 (29 Feb 84) on GOER series vehicle (TM 9-2320-233-34) reference TACOM message, 051740Z Jul 79, on retaining screw to drum assembly safety.

COMBAT VEHICLE ACCIDENTS









The declining trend in combat vehicle accidents continued in CY 83 with a 7% decrease (22 accidents) from CY 82. During CY 83 75% of all combat vehicle accidents involved three types of vehicles - M113 carriers, M60 tanks and other carriers.

The rising trend in combat vehicle fatalities stabilized in CY 83 with the number of fatalities equalling the number in CY 82.

The declining trend in combat non-fatal injuries was reversed in CY 83 with a 1% increase (3 injuries) over CY 82.

The rising trend in combat vehicle costs was reversed in CY 83 with a 9% decrease ($.5 million) from CY 82. This was a result of a $.9 million reduction in property damage cost which offset a $.4 million increase in injury cost resulting from the addition of the cost of hospitalization.

COMBAT VEHICLE ACCIDENTS FY 83

	Accidents			Injuries	
Vehicle	Number	%	Cost	Fatal	Non-Fatal
M113 carrier	100	32	997,083	9	120
Other carrier	84	27	1,228,709	8	96
M60 tank	58	18	1,573,788	2	50
M48 tank	21	7	72,539	-	21
M1 tank	16	5	542,553	-	15
Other tank	13	4	129,000	-	11
VTR	10	3	254,748	-	13
SP guns and Howitzer	9	3	102,692	-	8
M551 Sheridan	5	1	65,835	1	4
TOTAL	316	100	4,966,947	20	338

PROBLEM AREAS

Three types of combat vehicles accounted for 75% of the combat vehicle accidents and 56% of the cost. These three types were M113 carriers, M60 tanks, and other carriers. Eighty-five percent of these accidents occurred during unit proficiency training, with the remaining 15% divided between unit on-the-job and basic training. The two problem areas associated with the top three vehicles analyzed for this report are driver error and material failure.

COMBAT VEHICLES

Driver Error
- Improper Decision
- Failed to Anticipate
- Failed to Follow Procedures/Orders/Laws
- Improper Attention
- Failed to Recognize
- Misjudged Clearance/Speed/Weight/Size

SYSTEMIC CAUSE FACTORS

- Unsafe Work Practives
- Insufficient Training
- Improper Operating Procedures

Materiel Failure/Malfunction
- Hatches
- Tracks
- Brakes
- Electrical Systems
- Engine
- Transmission

SYSTEMIC CAUSE FACTORS

- Inadequate Preventive Maintenance Programs

DRIVER ERROR COUNTERMEASURES

Articles published in COUNTERMEASURE emphasizing the need for trained drivers and procedures on how to implement (Jun 83).

Published the availability of the film, "Driving for the Army - A Job for Professionals", that will assist the unit driver's training program in COUNTERMEASURE (Jun 83).

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Recurring monthly accident briefs published in COUNTERMEASURE identifying typical accident cause factors in both AMV and ACV in an effort to increase the awareness of the soldier.

Recommendations made to TACOM to develop driver and crew emergency procedures by type vehicles to be included in operator's manuals (Dec 83).

Published request to the field on their "field emergency procedures" for input toward development of sound emergency procedures (Feb 84).

Recommended to TRADOC that definite track commander duties be identified and consolidated into single publication (Feb 84).

MATERIEL FAILURE COUNTERMEASURES

Issued Hazard Alert (Sep 83) on M901 (ITV) gunner's seat and increased risk associated with track commander's inability to properly position himself at name tag defilade. Action ongoing within TACOM to resolve problem.

Hazard Alert issued (Aug 83) on M109 155mm Howitzer (SP) accelerator pedal warning operators of the hazards associated with the bi-level accelerator pedal. Ongoing design evaluation by AMCCOM; results due third quarter 84.

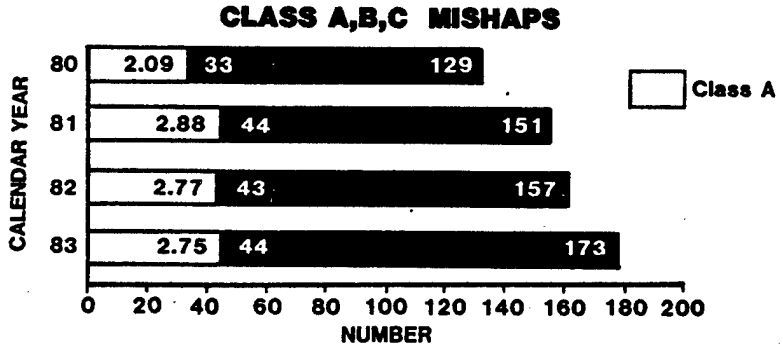
Published study on key causes of M113 APC and M60 tank accidents and distributed to field first quarter 84.

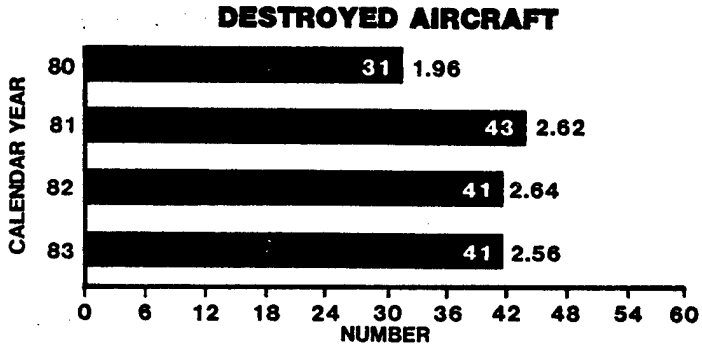
Hazard Alert issued (Nov 83) identifying hazards on M48A5 tank when expended shell casings on turret floors were causative factors in an explosion/fire inside turret area. The lack of an ECP application (wire protection screen) was found to be a contributing factor. Resolution within TACOM ongoing.

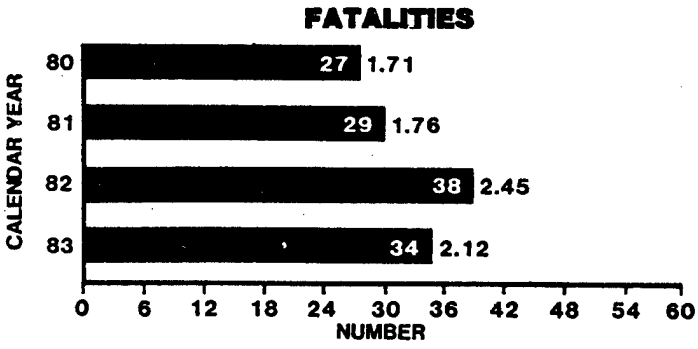
Recommendations submitted to TRADOC to review requirement for night vision training for ground troops (Feb 84) and training on night vision goggles (Oct 83). Action ongoing.

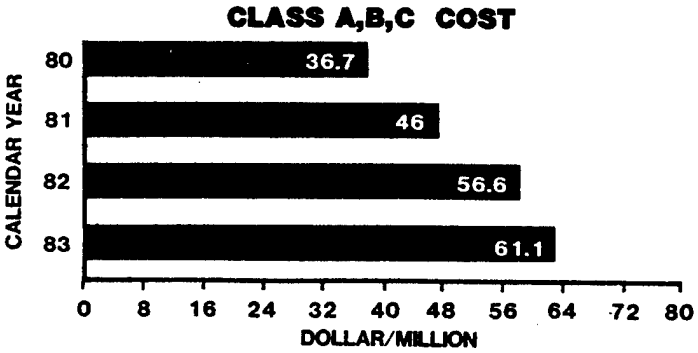
Issued Hazard Alert (Mar 84) on M548 ammo carrier identifying the hazard in misidentifying the throttle handle for the fuel cut-off handle. TACOM currently evaluating problem.

U.S. ARMY AVIATION FLIGHT MISHAP EXPERIENCE









X.X = Class A Rate Per 100,000 Flying Hours

Class A, B, and C aviation mishaps increased by 10% (16 mishaps) in CY 83 over CY 82. This increase is primarily due to the increase in number of Class C mishaps. Although the number of Class A mishaps increased by one, the Class A rate decreased because more hours were flown.

The declining trend in destroyed aircraft stabilized in CY 83 with the number of destroyed aircraft equalling the number destroyed in CY 82.

The rising trend in aviation fatalities was reversed in CY 83 with an 11% decrease (4 fatalities) from CY 82.

The rising trend in aviation costs continued in CY 83 with an 8% increase ($4.5 million) over CY 82. This increase is primarily attributed to the loss of more UH-60, CH-47 and OH-58 aircraft in CY 83 than in CY 82.

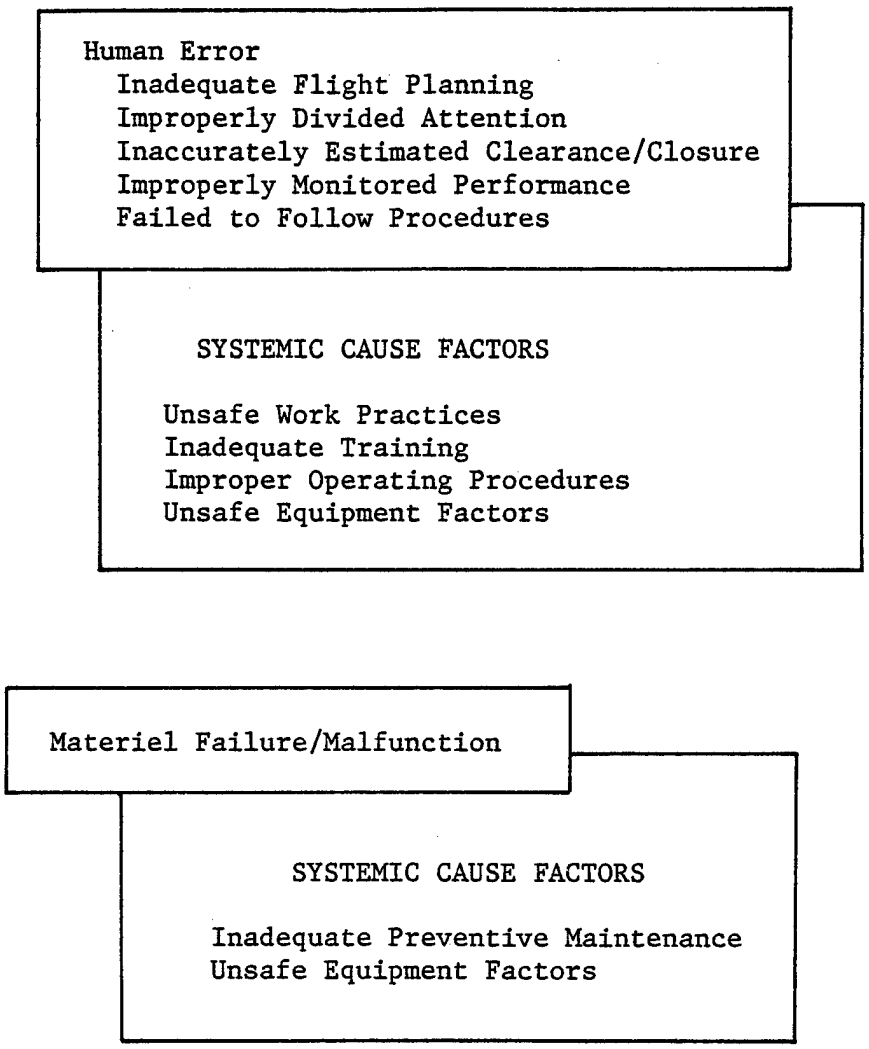
AVIATION FLIGHT MISHAPS CY 83

Aircraft Type	Number of Class A, B, & C Mishaps	Total Cost
Utility Helicopter	63	$29.8M
Observation Helicopter	46	$ 4.6M
Attack Helicopter	23	$ 9.2M
Cargo Helicopter	22	$11.5M
Trainer (TH-55)	8	$ .2M
Fixed Wing	18	$ 6.2M
TOTAL	180	$61.5M

PROBLEM AREAS

Utility helicopters are the single greatest source of A, B, and C mishaps and dollar losses. Utility helicopters have the greatest exposure in terms of number of aircraft in the field environment. While exposure may explain the high numbers, the greatest gains for reduction of mishaps and dollar losses can be made in the utility helicopter area. These utility helicopter mishaps were analyzed. Results: No indication of any new cause factor patterns or any factors that were notably different from the previous years. The failure of pilots, instructor pilots, flight leaders, and commanders to adhere to regulations and other directives in the performance of their mission and materiel failure/ malfunction accounted for most of these mishaps.

AVIATION FLIGHT MISHAPS



HUMAN ERROR COUNTERMEASURES

Thurman send message (051852Z Dec 83). Lessons Learned.

Several awareness articles were published in FLIGHTFAX and AVIATION DIGEST concerning these problems.

Awareness articles in FLIGHTFAX.

Lessons Learned (TRADOC).

Recommendation to amend Aeroscout POI to provide more "hands-on" flight in NOE regime.

Proposed change to AR 95-1 and ATM requirements requiring OH and AH pilots to demonstrate capacility to fly these aircraft in simulated instrument or hooded flight conditions.

Commander inform personnel and enforce regulatory requirements.

Awareness articles in FLIGHTFAX.

Lessons Learned.

OH-58 operator's manual amended to include detailed information on loss of tail rotor effectiveness (LTE) phenomenon; emergency procedure changed.

MATERIEL FAILURE/MALFUNCTION COUNTERMEASURES

Lessons Learned (DARCOM).

Safety-of-flight (SOF) messages.

Maintenance information messages.

Lessons Learned (DARCOM).

SOF messages

Maintenance information messages.

Product Improvement Program (PIP)/Engineering Change Proposal (ECP).

Three PIP (Improved Tail Rotor, Power Droop Modification, and 3-Axis Stability Augmentation and Control System (SCAS) were approved for OH-58A/C model retrofit plan.

Removal and replacement of upper control hardware on CH-47 by SOF message and urgent TB 55-1520-241-20-23.

Teardown analysis (TDA) program to identify deficiencies and initiate corrective actions as necessary.

FLIGHTFAX awareness articles.

Enforcement of maintenance manual requirements

Both SOF and maintenance information messages transmitted to the field covering maintenance areas of concern.

Unit supervisors enforce maintenance manual requirements.

Lessons Learned (TRADOC/DARCOM).

RAC 1 AND 2 OSH HAZARDS ABATEMENT

FUNDS PROVIDED BY PDIP 1S61 (Millions)

	FY80	FY81	FY82	FY83	FY84	TOTAL
OMA	$21.3	$26.3	$33.4	$30.2	$28.4	$139.6
MCA	$	$	$11.9	$15.3	$19.8	$ 47.0
TOTAL	$21.3	$26.3	$45.3	$45.5	$48.2	$186.6

FUNDS SPENT FY80 - FY83 (Millions)

	Allocated	Spent
OMA	$111.2	$141.3
MCA	$ 27.2	$ 27.2
TOTAL	$138.4	$168.5

FUNDS RESOURCED FOR FY84 (Millions)

	Allocated	Spent as of 31 Dec 84
OMA	$28.4	$ 3.4
MCA	$19.8	$19.8
TOTAL	$48.2	$23.2

EXPLOSIVES HAZARDS ABATEMENT

FUNDS PROVIDED BY PDIP 1S3Y (Millions)

	FY86	FY87	FY88	FY89	TOTAL
OMA	$10.0		$ 3.0	$14.0	$27.0

The US Army Safety Center (USASC) is presently developing an Army Data Bank on waivers and exemptions with respect to explosives safety standards. Baseline information for the data base was requested from the Major Army Commands in December 1983. Most of the information requested has been provided. This information is being consolidated by USASC for input into its computer system and for development of a new PDIP to abate, when possible, the conditions that prompted the waivers or exemptions.

SAFETY PERSONNEL STAFFING

FULL TIME	MILITARY	CIVILIAN	FOREIGN NATIONAL
GS-018 Safety Manager/Specialist		517	125
GS-803/801 Safety Engineer		201	
Aviation Safety Officers	407	19	
GS-019 Safety Technician		26	
National Guard GS-018 Safety Manager		52	
TOTAL	407	815	125

PART TIME	MILITARY
National Guard Aviation Officers	235
Army Reserve Aviation Safety Officers	88
Unit Collateral Duty Safety Officers	Unknown
TOTAL	323

HAZARDOUS MATERIALS INFORMATION SYSTEM (HMIS)

In May 1983, the US Army Materiel Development and Readiness Command (DARCOM) was tasked to take the lead to rejuvenate the Army's participation in the DOD HMIS. Since then, several meetings have been held with principal organizations involved to develop implementing guidance on the HMIS for the Army. These meetings delineated the responsibilities for implementing the specific elements of the HMIS and developed the necessary policies and procedures for bringing together all facets of procurement and automation to assure that the needed information is automatically inserted in the procurement process. As a result of these meetings a draft Army regulation (AR 700-XX) was developed to implement the HMIS for the Army. This draft regulation has been staffed with the Major Army Commands and is currently scheduled to be sent to Headquarters, Department of the Army, for final staffing and publication in June 1984. Implementation of this regulation will provide for effective Army participation in the DOD HMIS.

SYSTEM SAFETY

Special emphasis was placed on the system safety program element during calendar year 1983 in order to enhance the level of safety incorporated in the development process of major Army systems. Critical safety issues related to major milestone accomplishment in the development of major Army systems were given more in-depth coverage in the meetings of the Army Systems Acquisition Review Council (ASARC). In addition, a pilot project on lessons learned was initiated which should eventually provide a worthwhile historical data base from which Project Managers and other systems developers can obtain accident data on similar systems to eliminate the recurrence of unsafe designs. Army safety regulations and procedures are presently being revised to provide better program direction and guidance on system safety matters. In addition, initiatives are underway to establish an Army-level system safety working group to bring together the principal personnel involved in system safety. The prime interest of this working group will be to investigate system safety problems confronting the Army and to make recommendations on how the problems can be resolved.

PROGRAM GOALS AND OBJECTIVES FY 84

Reduce the incidence of work place injuries and illnesses resulting in new compensation claims by 3% as compared to CY 83.

Reduce the number of fatal and disabling injuries to military personnel by 3% as compared to CY 83.

Reduce the number of Class A, B and C aviation accidents by 5% as compared to CY 83.

Establish an explosive safety training course to provide instruction in safe operating procedures/standards for operational activities.

Revise AR 600-55, Driver Selection, Testing and Licensing to provide standardized formal driver training to all Army drivers.

Develop countermeasures emphasizing specific controls for problem areas related to injuries resulting from personnel injuries - other accidents.

OCCUPATIONAL HEALTH

Publish, distribute and implement Health Hazard Assessment directives in support Army-wide.

Standardize the test and evaluation methodologies utilized in the health hazard assessment process.

Increase efforts to protect the soldier from health hazards associated with newly developed materiel (weapons, clothing, equipment).

These three objectives were achieved. The publication of AR 40-10, Health Hazard Assessment Program in Support of the Army Materiel Acquisition Decision Process, in September 1983, formalized the health hazard assessment process. Thirty-eight Health Hazard Assessments were completed in 1983.

Implement milestones 2 and 3 in the development cycle of the Army-wide Occupational Health Management Information System (OHMIS).

As originally conceived OHMIS was designated an AR 18-1 Class IV System. In December 1983, due to projected additional costs to above $3 million, its interaction with VIABLE, and its impact on other MACOM's, OHMIS was re-designated a Class III System.

OCCUPATIONAL HEALTH OBJECTIVES AND GOALS FOR CY 83

Implement an Army-wide Occupational Health Training Program that informs DA employees of the health hazards associated with their employment.

This objective was partially achieved. The Academy of Health Sciences has produced and made available for distribution a videotape entitled "Health Hazard Training" to be utilized in orienting supervisors to their employee training responsibility. However, employee education of the hazards encountered in the workplace remains inadequate.

Reemphasize, Army-wide, the provisions of the Army Hearing Evaluation Automated Registry System (HEARS).

This objective was only partially achieved. Despite increased command and staff emphasis overall Army participation rates do not exceed 50%. However, the Army continues to generate only 15% of the annual DOD hearing loss claims.

Initiate actions to further occupational health medical surveillance monitoring programs including securing mobile vans with supporting resources as appropriate.

This objective was achieved. PDIP 6T4P was successfully defended and funded through the efforts of DASG-PSP and OASA (IL&FM). This resulted in an increase of 185 civilian authorization for FY 84 and outyears. Procurement of the occupational health vans is proceeding in accordance with established milestones.

Conduct occupational health program management evaluations at all levels of the Army.

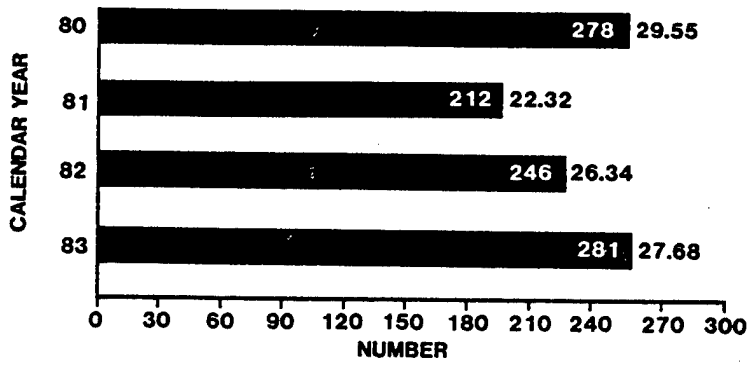
This objective has been partially achieved. Health Services Command and the Seventh Medical Command (Europe) have identified the Occupational Health Program as an item of IG interest. Representatives from OTSG have evaluated CONUS and European programs. USAEHA has developed and is now ready to conduct a field test of a self-audit/evaluation for use by each OH program.

Implement occupational health programs at overseas Army installations.

This objective is ongoing. Forty manpower authorizations were distributed to Europe and a Board Certified Occupational Health Consultant assigned to the Seventh Medical Command.

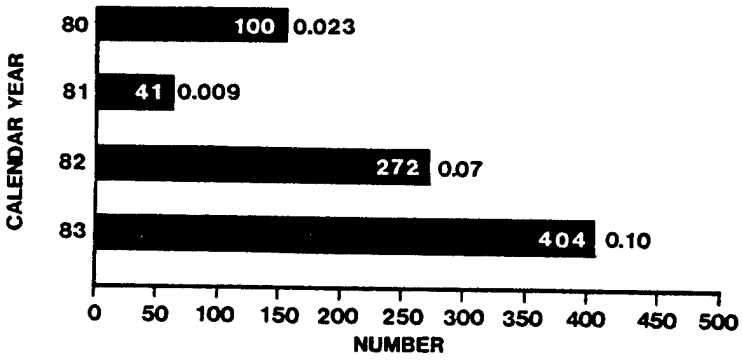
U.S. ARMY OCCUPATIONAL ILLNESSES

MILITARY



Military Rate per 100,000 Population

CIVILIAN

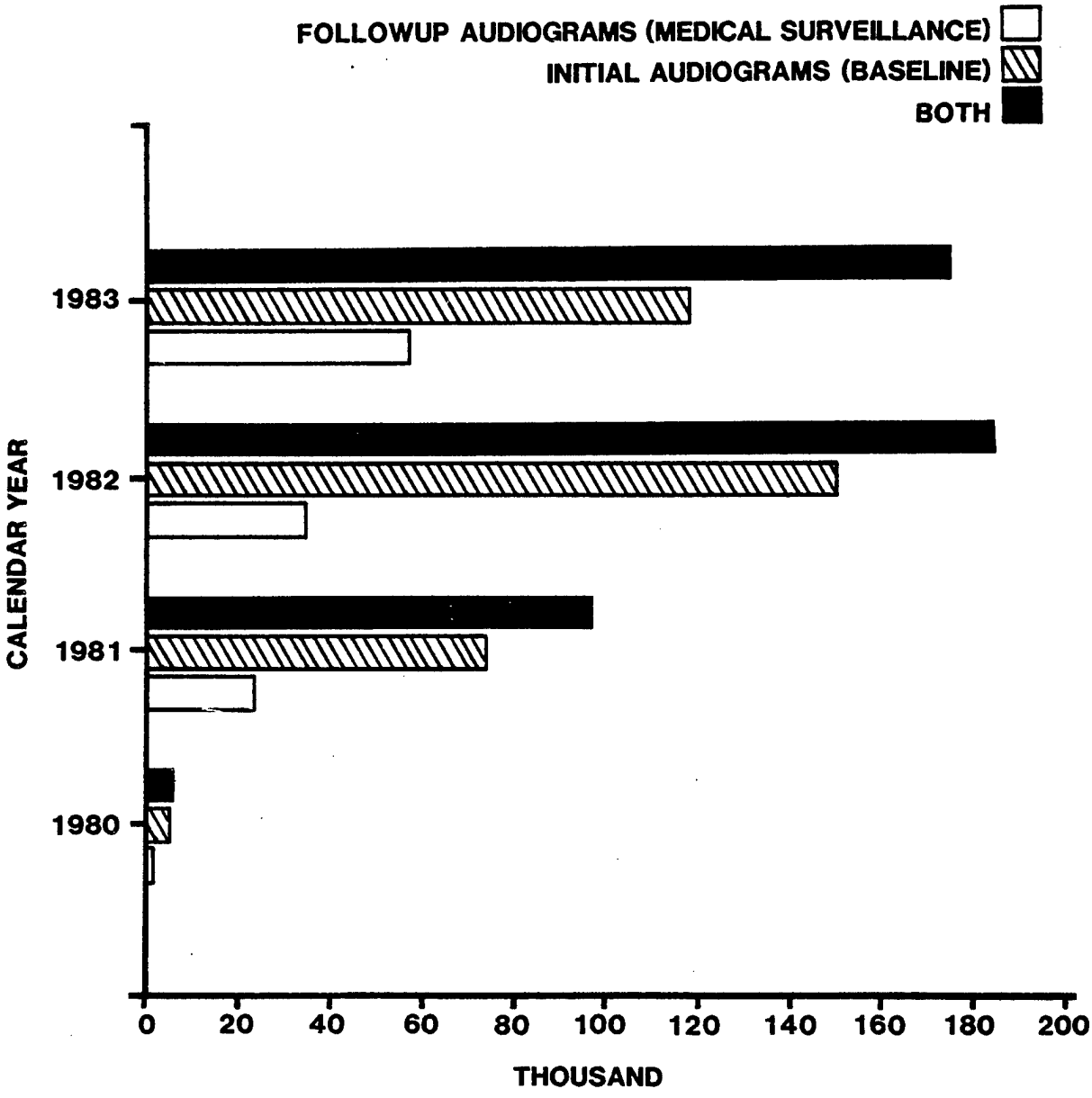


Civilian Rate per 200,000 Man-Hours

The rising trend in military occupational illnesses continued in CY 83 with a 14% increase (35 occupational illnesses) over CY 82. The majority (85%) of these illnesses were attributed to disorders due to repeated exposure to physical agents such as heat stroke, heat exhaustion, sun stroke and other effects of environmental temperature extremes. During CY 83, 5 military fatalities occurred.

The sharply rising trend in civilian occupational illnesses continued in CY 83 with a 48% increase (132 occupational illnesses) over CY 82. The majority (68%) of the civilian illnesses were attributed to respiratory conditions due to toxic agents, occupational skin diseases or disorders and disorders due to repeated trauma (noise induced hearing loss, etc.).

HEARING CONSERVATION FORMS RECEIVED AT USAEHA BY CALENDAR YEAR



SPECIAL INTEREST ITEMS

- IMPACT OF THE HEALTH HAZARD ASSESSMENT PROGRAM
- OCCUPATIONAL HEALTH MANAGEMENT INFORMATION SYSTEM MILESTONES
- PROCUREMENT SCHEDULE FOR THE MOBILE OCCUPATIONAL HEALTH VEHICLES (MOHV)
- ARMY HEARING CONSERVATION PROGRAM PARTICIPATION
- ARMY NATIONAL GUARD MEDICAL SURVEILLANCE PROGRAM

STAFFING - OCCUPATIONAL HEALTH
CY 83

FULL TIME	MILITARY	CIVILIAN	FOREIGN NATIONALS
Occupational Health Physicians	20	36	0
Occupational Health Nurses	1	187	2
Industrial Hygienists	45	75	4
Health Physicists	70	54	0
Technicians	60	25	2
Others	47	20	0
Sub Totals	243	397	8

PART TIME	MILITARY	CIVILIAN	FOREIGN NATIONALS
Occupational Health Physicians	250	30	0
Occupational Health Nurses	10	0	0
Industrial Hygienists	95	50	0
Health Physicists	16	0	0
Technicians	300	21	0
Others	20	55	2
Sub Totals	691	156	2
TOTAL	934	553	6

STAFFING - OCCUPATIONAL HEALTH
CY 82

FULL TIME	MILITARY	CIVILIAN	FOREIGN NATIONALS
Occupational Health Physicians	20	36	0
Occupational Health Nurses	1	185	2
Industrial Hygienists	42	75	0
Health Physicists	67	54	0
Technicians	50	25	2
Others	47	20	0
Sub Totals	227	395	4

PART TIME	MILITARY	CIVILIAN	FOREIGN NATIONALS
Occupational Health Physicians	250	30	0
Occupational Health Nurses	7	0	0
Industrial Hygienists	98	50	0
Health Physicists	16	0	0
Technicians	300	21	0
Others	20	55	2
Sub Totals	691	156	2
TOTAL	918	551	6

STAFFING - OCCUPATIONAL HEALTH
CY 81

FULL TIME	MILITARY	CIVILIAN	FOREIGN NATIONALS
Occupational Health Physicians	8	34	0
Occupational Health Nurses	1	185	2
Industrial Hygienists	40	73	0
Health Physicists	72	2	0
Technicians	20	21	2
Others	5	8	0
Sub Totals	146	323	4

PART TIME	MILITARY	CIVILIAN	FOREIGN NATIONALS
Occupational Health Physicians	19	27	0
Occupational Health Nurses	2	0	0
Industrial Hygienists	66	0	0
Health Physicists	0	0	0
Technicians	121	19	0
Others	2	4	2
Sub Totals	207	50	2
TOTAL	356	373	6

PROCUREMENT SCHEDULE FOR THE MOBILE OCCUPATIONAL HEALTH VEHICLES

FINAL DESIGN SPECIFICATIONS ESTABLISHED	NLT 1 JULY 1984
ISSUE REQUEST FOR BIDS	110 DAYS
PRE-AWARD EVALUATION PROCESS	20 DAYS
POST-AWARD CONTRACTOR SPECIFICATIONS (MOCK-UP REVIEW)	210 DAYS
PROTOTYPE EVALUATION	90 DAYS
PRODUCTION RUN	
	470 DAYS ±

ESTIMATED FIRST DELIVERY DATE - MARCH 1986

OCCUPATIONAL HEALTH MANAGEMENT INFORMATION SYSTEM (OHMIS)

At the direction of the ASA (I&L) OHMIS has been redesignated as a Class III system under the provision of AR 18-1. A revised Mission Element Needs Statement (MENS) has been submitted to HQDA. MAJ Michael F. Huebner, MSC, has been appointed OHMIS Product Manager with duty assignment at USAEHA. The following tentative schedule for implementing the OHMIS is proposed: FY 84, complete functional description; system specifications, and program management documentation; obtain decision on VIABLE acceptance of OHMIS; FY 85, develop system software and documentation; initiate hardware acquisition; FY 86, validate software; complete system test and evaluation; conduct user training; FY 87, complete phased deployment.

ARMY NATIONAL GUARD (ARNG)
MEDICAL SURVEILLANCE PROGRAM

A 21 April 1983 DOD Audit Report determined the ARNG Medical Surveillance Program for ARNG technician/ AGR personnel did not meet DOD requirements. In order to correct the DOD audit findings and bring the ARNG into compliance with the DODI, a Medical Surveillance Program for ARNG technician/AGR personnel has been developed and distributed to the states as an integral part of NGR 385-10, dated 25 Nov 83. Chapter 5 of NGR 385-10 prescribes NGB policy and complies with the requirements of PL 91-596. To provide the states with the level of professional expertise necessary to implement and administer the program, one occupational health nurse technician position, GS-09, has been allotted to each state except DC, VI and Guam. It is expected that these positions will be filled by June 1984. The position is authorized for providing health services to employees in relation to their occupations and working environments, to serve as the radiological protection officers and to assist the state safety and occupational health managers in the execution of the OSH program in the states. The position is not intended for routine nursing functions such as weight control, enlistment physicals, administrative functions, etc. A manpower validation survey and a classification audit will be conducted at the end of 1 year to determine if additional resources are necessary and to determine proper grading of positions. The audit will be used to determine if states meet statutory requirements of PL 91-596 through implementation and enforcement of the prescribed medical surveillance progran and to determine if incumbents to the technician positions are being utilized for the intended purpose.

IMPACT OF

HEALTH HAZARD RESEARCH AND ASSESSMENTS

ON

US ARMY WEAPON SYSTEMS OR COMPONENT PARTS

HEALTH HAZARD ASSESSMENTS

- Multiple Launch Rocket Systems (MLRS) - Resulted in PM over-pressuring and improving the seals of the crew compartment due to leakage of hydrogen chloride and ammonia into the crew compartment from the combustion of the rocket engines.

- Light Armored Vehicle (LAV)- Resulted in a re-design of the crew compartment ventilation system.

- M 109 Self-Propelled Howitzer - Resulted in PM placing armor on the bore evacuator. The bore evacuator was identified as a critical element for exhausting combustion products of projectiles from the crew compartment, and if the bore evacuator were damaged hazardous levels of carbon monoxide (6000 PPM) and other combustion products would fill the crew compartment.

- M 198 Howitzer - Resulted in man-rating, influenced the operational procedures for firing in training, limited the number of rounds that could be fired per soldier per day.

- Dragon, Launch Environmental Simulator - Resulted in identifying a lack of data for noise and combustion products, while the PM was collecting the required data the Dragon LES blew-up in project engineers face - delayed development.

- 1 81MM Mortar - Resulted in the PM adding a blast attenuator device, limit the number of rounds that could be fired per soldier per day, changed the gunners head position.

- Composit Tool Kit, P-10 Plastic - Resulted in stopping development because of exposure of soldiers to hazardous substances (toxic vapors/fumes/gases).

DEPARTMENT OF THE ARMY OCCUPATIONAL HEALTH OBJECTIVES - 1984

- CONDUCT OCCUPATIONAL HEALTH PROGRAM MANAGEMENT EVALUATIONS AT ALL LEVELS OF THE ARMY

- CONTINUE IMPLEMENTATION OF OCCUPATIONAL HEALTH PROGRAMS AT OVERSEAS ARMY INSTALLATIONS

- EMPHASIZE THE OCCUPATIONAL HEALTH PROGRAM FOR ACTIVE DUTY MILITARY

- DEVELOP A MODEL OCCUPATIONAL HEALTH PROGRAM AT A MAJOR INDUSTRIAL INSTALLATION AND A EUROPEAN MEDDAC

FIRE

PROGRAM OBJECTIVES AND GOALS FOR CY 83

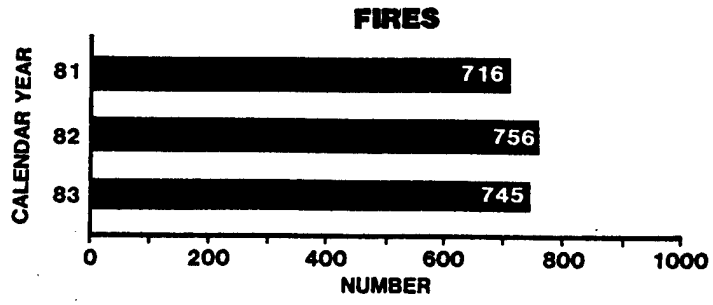
OCE, HQDA will assist MACOMs and installations to complete the program for installing smoke detectors in all government rent-free family quarters.

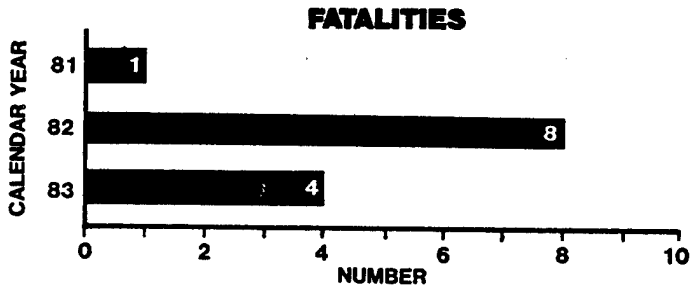
This objective was not achieved. USAREUR is the only MACOM which has not completed installing these smoke detectors due to a litigation problem with a local fire alarm distributor. OCE, HQDA issued a policy decision on type of detector acceptable to the Army which was instrumental in removing this obstacle. All smoke detectors have been purchased and installation in USAREUR family quarters will begin this summer.

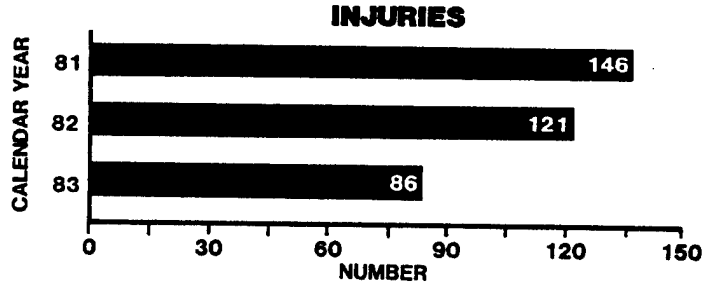
OCE, HQDA will assist MACOMs and installations reduce the number of Army fires by 5%, property/material loss by 10%, injuries by 5% and fatalities by 25% in CY 83.

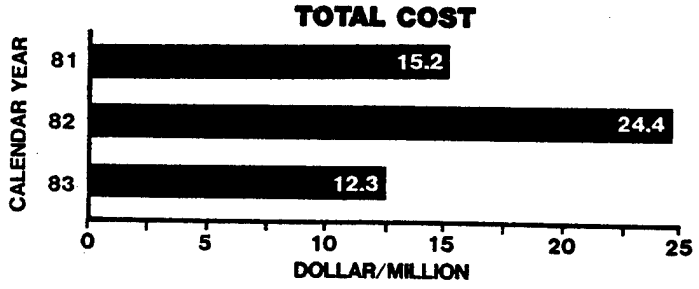
This objective was primarily achieved. Number of fires decreased by 1.5%, fire fatalities and injuries reduced by 50% and 29%, respectively and property/material losses decreased by 49%. OCE, HQDA publishes a Facilities Engineering Annual Summary of Operations identifying problem fire areas to all MACOMs and installations. Also, an OCE Quarterly Items of Interest bulletin publicizes causes and preventive measures of serious fire losses occurring throughout the year. Installation fire departments also participate in orientation briefings for all new and incoming personnel. No special initiatives were done which can account for the dramatic decrease in certain CY 83 statistics.

ARMY FIRE LOSSES









The upward trend in the number of Army fires was reversed in CY 83 with a 1.5% decrease (11 fires) from CY 82. No significant changes in types of fires indicated. Residential occupancies (41%) continue to be the cause of most fires. Primary fire causes were: careless smoking; unattended cooking and children playing with matches/ lighters.

The sharp upward trend in fire fatalities was reversed in CY 83 with a 50% decrease (4 fatalities) from CY 82. Decrease in family quarters fatalities was sole cause. Fatalities in family quarters cause 75% of fire deaths in CY 82 and 50% in CY 83. Primary cause of fatalities was smoke poisoning.

The downward trend in fire injuries continued in CY 83 with a 29% decrease (35 injuries) from CY 82. Most of reduction occurred in family quarters. Injuries in family quarters, 33% in CY 83 and 42% in CY 82, continue to lead categories.

The upward trend in Army fire costs was reversed in CY 83 with a 49% decrease ($12.1 million) from CY 82. Reducing Industrial and warehouse/storage losses caused this significant improvement. Track vehicle losses continue to remain high and lead all fire losses in CY 83 ($2.5 million). Primary fire causes were electrical malfunctions and fuel leaks.

ARMY FIRE LOSSES CY 83

Occupancy	No. of Fires	$ Loss	Injuries	Fatalities
Family Quarters (Rent-Free)	210	1,493,028	23	2
Wheeled Vehicles (includes POV except for cost)	147	611,501	10	0
BEQ's, BOQ', BK's	62	461,420	2	0
Industrial	52	1,970,390	13	0
Public Assembly	49	1,853,912	4	0
Tracked Vehicles	39	2,464,944	8	0
Grass/Forest	39	391,855	8	0
Tent	27	102,940	10	1
Family Quarters (Leased)	29	280,244	3	1
Miscellaneous	24	104,793	1	0
Warehouse/Storage	22	1,195,792	1	0
Admin/Office	25	687,018	3	0
Schools	7	606,113	0	0
Health Care Facilities	6	30,177	0	0
Vacant Structures	4	19,844	0	0
Aircraft Hangars	2	29,469	0	0
Family Quarters (Mobile Homes)	1	0	0	0
TOTALS	745	12,303,440	86	4

ARMY FIRE LOSSES CY 82

Occupancy	No. of Fires	$ Loss	Injuries	Fatalities
Family Quarters (Rent-Free)	210	1,273,216	43	6
Wheeled Vehicles	141	703,822	9	0
BEQ's, BOQ's, BK's	68	1,543,962	8	0
Industrial	51	6,655,787	8	0
Grass/Forest	46	69,300	5	0
Miscellaneous	37	297,392	7	0
Warehouse/Storage	37	6,102,836	3	0
Tracked Vehicles	35	3,895,462	4	2
Public Assembly	30	883,509	0	0
Admin/Office	27	1,201,696	13	0
Family Quarters (Leased)	26	43,511	0	0
Tent	25	131,657	7	0
Schools	10	791,417	14	0
Health Care Facilities	8	158,867	0	0
Aircraft	3	598,306	0	0
Family Quarters (Mobile Homes)	2	8,531	0	0
TOTALS	756	24,359,271	121	8

FIRE PROTECTION STAFFING

FULL TIME	MILITARY	CIVILIAN	FOREIGN NATIONAL
Fire Prevention Engineers		6	1
Fire Protection Specialists		6	10
Firefighters	365	3064	1305
TOTAL	365	3076	1316

PART TIME	MILITARY	CIVILIAN
Firefighters	80	362
TOTAL	80	362

FY 84 OBJECTIVES

Publication of revised AR 420-90, "Fire Protection" implementing sweeping changes mandated by DODI 6055.6, "DOD Fire Protection Program."

Implement new DOD Fire Incident Reporting Manual (DOD 6055.7-M) which will assist the DOD Fire Protection Coordinating Committee (Army, Navy, Air Force, and Marines) identify common problems and launch coordinated corrective actions.

Conduct a Worldwide Army Fire Chiefs Training Session to update MACOM/ Installation fire chiefs/fire protection managers on latest DOD and DA policies and state-of-the-art practices/programs.

Develop countermeasures in conjunction with USASC to attack the recurrring high fire frequency in family quarters and high fire losses in track vehicles.